5525 EIGHTH LINE, ERIN, ONTARIO
ERIN FAIRWAYS SUBDIVISION

SCOPED ENVIRONMENTAL IMPACT STUDY (EIS) REPORT

Prepared For:

EC (Erin) GP Inc.

Prepared By:

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May 2022

Signatures

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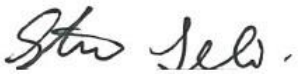

May 18, 2022

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May 18, 2022

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1.0 INTRODUCTION

1.1 Site & Study Overview

WSP Canada Inc. (WSP) has been retained by EC (Erin) GP Inc. to complete a Scoped Environmental Impact Study (EIS) in support of a proposed development at the Erin Heights Golf Course property, located at 5525 Eighth Line in the Village of Erin, Wellington County (the 'Subject Property'; **Figure 1**).

The Subject Property is located in the northwest corner of the Village of Erin and consists of an active golf course (Erin Heights Golf Course). The Subject Property is 13.86 ha in size and is bounded by agricultural lands and natural areas to the west and south, residential areas to the southeast and natural areas to the north and northeast. Adjacent natural areas include the West Credit River, an un-named tributary, woodland and portions of the *West Credit River Provincially Significant Wetland* (PSW) complex. Per Schedule A-2 of the Town of Erin Official Plan (2012), the PSW wetland, as well as the Credit River (Erin Branch), including associated tributaries and riparian areas are designated as *Core Greenlands*, with the Subject Property designated as *Residential*. Due to adjacent natural features (watercourse and PSW), much of the area surrounding the Subject Property is regulated by Credit Valley Conservation (CVC) under Ontario Regulation 160/06, with this regulated area extending onto the northern portion of the Subject Property. These designations are shown on **Figure 1**.

1.2 Study Approach & Scope of Work

1.2.1 Background Information

Natural environment features and functions within the vicinity of the Subject Property have been characterized and evaluated using a combination of background information and field surveys, as discussed below. The review of secondary source background information included the following sources:

- eBird website – Interactive species range maps
- iNaturalist website – Species observation mapping
- Fisheries and Oceans Canada (DFO) – Aquatic species at risk mapping
- Credit Valley Conservation Authority (CVCA) - resource mapping
- Land Information Ontario (LIO) database information
- Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) Natural Heritage Information Centre (NHIC) database and mapping
- Ontario Mammal Atlas (Dobbyn 1994)

- Ontario Reptile and Amphibian Atlas (Ontario Nature website)
- Ontario Breeding Bird Atlas (Birds Canada website)
- Relevant Town of Erin Official Plan (Office Consolidation October 2021 and County of Wellington Official Plan (Office Consolidation July 2021) policies and guidelines
- Topographic mapping (OBM, NTS), and both historical and current aerial photography

1.2.2 Recommended Fieldwork

Field survey components are listed in Section 2.0 and described in respective sections of the current report, with a field survey chronology included in **Appendix A**. Data analysis and evaluation has included preparation of species inventories, habitat assessments, and evaluations of significance and sensitivity using relevant guidelines and policy, as described in various sections of the current report.

The scope of work is based on the Pre-consultation Meeting Response & Development Application Submission Requirements for 5525 Eighth Line, Town of Erin (Town of Erin; August 25, 2021), Town of Erin Official Plan (Office Consolidation October 2021), County of Wellington Official Plan (Office Consolidation July 2021), and a Terms of Reference that was submitted to CVC, the Town of Erin and County of Wellington on October 1, 2021. Comments were received from the Town and County on October 28, 2021 and from CVC on November 19, 2021; those comments have been reviewed and incorporated into the current study as required. The submitted Terms of Reference and associated agency comments are included in **Appendix B**.

1.3 Policy Framework

The natural heritage policy framework, including designations, guidelines and recommendations at the federal, provincial, regional and municipal level, has informed this study. Key documents include the Provincial Policy Statement (PPS) and its guidance documents, and Official Plans for the Town of Erin and County of Wellington. A detailed discussion of relevant natural heritage policies and evaluation for the subject property is included in Section 4.

2.0 EXISTING CONDITIONS

2.1 Land Use

The Subject Property consists of an active golf course (Erin Heights Golf Course) and associated buildings (clubhouse, staff quarters, maintenance shed). The Subject Property is almost entirely manicured grass, with isolated, planted trees and tree clusters. As noted, the Subject Property is bounded by agricultural lands and

natural areas to the west and south, residential areas to the southeast and natural areas to the north and northeast. Adjacent natural areas include the West Credit River and un-named tributary (including wetland and riparian habitat) and forest to the north and northeast, and the *West Credit River Provincially Significant Wetland* (PSW) complex, primarily to the north and northeast, with some isolated pockets on the southwest side of Eighth Line. Note that none of these adjacent natural heritage features encroaches onto the Subject Property, and the proposed development envelope is restricted entirely to the active golf course lands.

2.2 Physiography and Soils

This section incorporates information from the Hydrogeological Assessment, Water Balance Assessment and Source Water Protection Analysis, Erin Fairways Subdivision, 5525 Eighth Line, Town of Erin, ON (Terra-Dynamics Consulting Inc. May 2022) and the Preliminary Geotechnical Investigation Proposed Residential Subdivision Erin Heights Golf Course 5525 8th Line Erin, Ontario (DS Consultants Ltd. May 2021. The reader is directed to these reports prepared under separate cover for additional detail.

2.2.1 Physiography

The Subject Property is located within the Guelph Drumlin Field within a glacial outwash plain spillway area, immediately north of an area that is mapped as till plain (Chapman and Putnam, 1984, (CVC, 1998)). The Subject Property is located within Subwatershed 15 of the West Credit River watershed (AquaResource Inc. 2009). The topography of the Subject Property generally slopes to the north from an elevation of 424 metres above sea level (mASL) in the southwest corner to a topographic low of 397 mASL in the northeast corner, with the downgradient West Credit River tributary at or below 394 mASL.

2.2.2 Drainage

The Subject Property is located within the West Credit River watershed. Surface water drains across the Subject Property via diffuse overland flow to the north and northeast under existing conditions, with a change in relief of approximately 27 m across the Subject Property. There are no defined watercourses on the property.

2.2.3 Soils & Groundwater

The following soil conditions were noted at the Subject Property by DS Consultants Ltd (May 2021):

- Granular fill of 50 mm to 250 mm in thickness was encountered at the surface of MW21-1 and MW21-10. A surficial topsoil layer was encountered at MW21-2, MW21-3, and BH21-4 to BH21-9. The measured topsoil thickness at the borehole locations ranges from 100 mm to 350 mm.

- Underlying the topsoil or granular fill, fill materials were contacted extending to a depth of 1.5 m to 3.0 m below grade in BH21-3 to BH21-5, BH21-9, and MW21-10. The fill materials consisted of sand, silty sand to sandy silt, with some gravel, trace to mixed with organics/topsoil, and were found to be in a very loose to compact state.

- Below the topsoil, granular fill at MW21-1, or gravelly sand in BH21-8, silt and sand to silty sand with trace gravel, trace clay was encountered in MW21-1, to MW21-3, BH21-5, BH21-8, and MW21-10, and extended to depths varying between 2.1 m to 7.6 m below grade.

- Cohesionless deposits consisting of sand and gravel, or sandy gravel to gravelly sand, with some silt were contacted below the topsoil in BH21-6 to BH21-8 and extended to depths varying between 1.5 m to 4.6 m below grade.

- Below the cohesionless materials, glacial deposits consisting silty sand till were encountered and generally extended to the entire depth explored in the boreholes, i.e. to 7.7 m to 11 m below grade. The till contained some gravel, some clay and cobble/boulder.

Within the Subject Property, groundwater flows generally follow the prevailing surface topography, with groundwater flowing in a north to northwest direction towards the West Credit River and the associated PSW. The reach of the West Credit River adjacent to the Subject Property is a groundwater discharge feature (Terra-Dynamics; 2022). Recorded shallow groundwater levels across the Subject Property ranged from 1.2 m BGS to 6.9 m BGS over the monitoring period (April 2021 to August 2021), with the highest groundwater elevations occurring in April 2021.

2.3 Natural Heritage Features & Designations

2.3.1 Existing Designations

Refer to **Figure 1** (end of report) for locations of features described below.

- Two provincially designated features are present north and east of the Subject Property:
    - The *West Credit River PSW Complex* is located within the woodland, along low lying areas associated with the West Credit River and un-named tributary.
    - A White-tailed Deer (*Odocoileus virginianus*) Winter Area (Stratum 2) is identified within the woodland adjacent to the Subject Property (LIO; May 20, 2011).
- *Core Greenlands* identified on Schedule A-2 of the Town of Erin Official Plan (Office Consolidation 2021):

- Associated with the woodland northwest of the Subject Property. That feature meets the criteria for *Significant Woodland* per the County of Wellington Official Plan and the Town of Erin Official Plan.

2.3.2 Feature Delineation

The Subject Property was subject to a severance, completed by the previous owners. At the time of severance (on June 17, 2019), CVC staff staked and verified the natural feature limits (dripline and wetland) in the vicinity of the Subject Property. Associated setbacks (woodland + 10 m and wetland + 30 m) were added to the survey plan and approved by CVC at the time of the severance application. Therefore, based on previous work, no updated feature delineation exercise was completed as part of the current study.

The limits of the Subject Property are outside of the features staked by CVC and their associated setbacks. As such, there are no natural features located on the Subject Property. Note that while no feature delineation update was undertaken, WSP staff reviewed the surveyed feature limits described above while conducting other fieldwork and confirmed their veracity as related to the proposed development.

Confirmed feature limits are shown on **Figure 2**.

2.4 Vegetation & Flora

2.4.1 Approach

A botanical inventory and vegetation assessment was completed on and adjacent to the Subject Property on May 4, 2021, and August 24, 2021. Vegetation fieldwork and associated data assessment involved:

- Botanical inventory and preparation of a vascular plant species list (**Table C.1**, **Appendix C**)
    - Plant species status was evaluated using: The Vascular Plant Flora of the Region of Peel and the Credit River Watershed (Kaiser, 2001); The Flora of Wellington County (Frank and Anderson, 2009); The Distribution and Status of the Vascular Plants of Central Region (Riley e.t al., 1989) for regional significance; the NHIC website for provincial rarity ranks (i.e., S-Ranks); the Species at Risk in Ontario list (E-laws; updated periodically, Committee on the Status of Species at Risk in Ontario [COSSARO]) for provincial status designations; and the Canadian Species at Risk list (Species at Risk Public Registry; updated periodically) for national status designations (Species at Risk Act [SARA], Committee on the Status of Endangered Wildlife in Canada [COSEWIC]).
    - A search for significant or sensitive flora, including Species at Risk (SAR), that are historically known to be near or have potential to be found in the general area.

- Analysis of floristics of all inventoried plant species was completed by using their *Coefficient of Conservatism* (CC) and *Coefficient of Wetness* (CW), per the Floristic Quality Assessment System for Southern Ontario (Oldham et al. 1995), which uses an objective, quantitative method to compare the relative quality of two or more vegetation communities. The quality of a particular vegetation community can be reflected in the richness of conservative species within the community (Oldham et al. 1995).
- Classifying, mapping and evaluating vegetation communities within the study area. Vegetation communities were classified using the Ecological Land Classification for Southern Ontario (ELC) (Lee et al. 1998), unless a community was better described using the Southern Ontario Ecological Land Classification Vegetation Type List (Lee 2008).
- Vegetation community significance was evaluated using Natural Heritage Resources of Ontario: Vegetation Communities of Southern Ontario (Bakowsky 1996; NHIC website).
- General notes on community health and site disturbance and representative photos.

2.4.2 Results

2.4.2.1 Floristics

In total, 165 plant species were recorded on and adjacent to the Subject Property. Field survey notes and a complete list of vascular plant species recorded during WSP field surveys is provided in **Table C.1** in **Appendix C**. Of the species recorded:

- 102 (62%) are native and 53 (32%) are non-native.
- One (1) potential **provincially rare** species (i.e., S-rank S1 - S3) was recorded within the Subject Property: Honey Locust (*Gleditsia triacanthos*; S2?) around the golf courses / around buildings, likely planted trees. Note that '?' denotes inexact or uncertain numeric rank.

  All other recorded native species have a provincial ranking of S4 or S5 [apparently secure (S4) or secure (S5) in Ontario].
- No **globally rare** species (i.e., G-rank G1 - G3) were recorded.
- One **Species at Risk** (SAR), Black Ash (*Fraxinus nigra*), was recorded in Vegetation Unit 4 SWM4-1 (1 individual) and Unit 5 SWM3-2 (greater than 10 individuals). Black Ash is designated as *Threatened* by COSEWIC. It has not yet been added to the federal SAR List (i.e., Schedule 1 of SARA). Black Ash was also assessed by COSSARO (provincial) in 2019 and was designated as *Endangered* under the Endangered Species Act (ESA) on January 26, 2022. The Ministry of Environment, Conservation and Parks (MECP) created a new Minister's regulation (O. Reg. 23/22) that temporarily pauses the application of the general prohibitions against adversely impacting species and their habitat under the ESA for Black Ash for two years. During this time, relevant

information to determine optimal protection and recovery measures will be collected (Government of Ontario 2022). Therefore, Black Ash is not currently subject to the provisions of the ESA (2007) or SARA (2002).

- Four (4) species are **significant** within CVC limits:
    - Yellow Sedge (*Carex flava*; ELC Unit 3) listed as L, or Locally Rare.
    - Giant Blue Cohosh (*Caulophyllum giganteum*, ELC Unit 6) listed as R / L, or Regionally Rare / Locally Rare.
    - Eastern Ninebark (*Physocarpus opulifolius*, ELC Unit 3) listed as R / L.
    - White Spruce (*Picea glauca*, ELC Units 2 and 5) listed as L.
- One species is **significant** in Wellington County:
    - Hairy Solomon's Seal (*Polygonatum pubescens*, ELC Unit 6) listed as R1, or most rare.
- One species is **significant** in Wellington-Dufferin:
    - Spearmint (*Mentha spicata,* ELC Unit 1) listed as SR, or sight record.
- Of the 98 species recorded for which CC values are provided, the CC values range from 0 to 8, with 2% between 0 and 3 (i.e., taxa found in a variety of plant communities), 50% between 4 and 6 (i.e., taxa typically associated with a specific plant community but tolerate moderate disturbance), 11% between 7 and 8 (i.e., taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance – all except Honey Locust recorded in offsite areas to be retained), and none between 9 and 10 (i.e., taxa with a high fidelity to a narrow range of synecological parameters).

2.4.2.2 Vegetation Communities Overview

The portion of the property proposed for development is currently active golf course (Erin Heights Golf Course) with associated buildings (clubhouse, staff quarters, maintenance shed). No provincially significant vegetation communities are present within the Subject Property or on adjacent lands (i.e., Sranks of S1, S2 or S3 per Bakowsky 1996; NHIC website). Vegetation communities are discussed in **Table 1** and mapped on **Figure 2**.

Table 1: Vegetation Community Descriptions

UNIT	ELC VEGETATION TYPE	COMPONENT (% COVER)	COMPONENT SPECIES	PLANT SPECIES OF CONSERVATION CONCERN	DESIGNATIONS	ADDITIONAL DESCRIPTION AND COMMENTS
1	**CUH1-A** Cultural Treed Hedgerow	**Canopy** (>60%)	Abundant Manitoba Maple (*Acer negundo*), frequent Sugar Maple (*Acer saccharum*)	Spearmint (Regionally Significant, Wellington-Dufferin)	This unit is within lands identified as Woodland (NHIC 2022).	This narrow vegetation community (hedgerow) is located at the south property line adjacent to existing residential homes. This unit is mid-aged, is composed of primarily non-native and early successional species and is of low botanical quality. Evidence of disturbance was observed, including exotic species, dumping, recreational use and disease / death of trees.
		Sub-Canopy (25-60%)	Abundant Manitoba Maple, frequent Sugar Maple, Staghorn Sumac (*Rhus typhina*), European Buckthorn (*Rhamnus cathartica*)			
		Understory (25-60%)	Abundant European Buckthorn, frequent Chokecherry (*Prunus virginiana*), Alternate-leaved Dogwood (*Cornus alternifolia*), occasional Creeper species (*Parthenocissus* sp.)			
		Ground Layer (>60%)	Frequent Broad-leaved Enchanter's Nightshade (*Circaea canadensis*), Climbing Nightshade (*Solanum dulcamara*), Creeper species, Eastern Tall Goldenrod (*Solidago altissima var. altissima*)			
2	**FOD3-1** Dry-Fresh Poplar Deciduous Forest	**Canopy** (25-60%)	Abundant Trembling Aspen (*Populus tremuloides*), White Ash (*Fraxinus americana*), occasional Black Cherry (*Prunus serotina*)	White Spruce (Regionally Significant, Peel and / or CVC)	This unit is within lands identified as Woodland (NHIC 2022).	This successional forest community is present on lands northeast of the active golf course, adjacent to other treed communities and formerly used fairways. This unit young to mid-aged with low botanical quality and represents secondary growth arising on managed sites. Evidence of disturbance was observed, including exotic species, trails, dumping, recreational use, noise and disease / death of trees.
		Sub-Canopy (25-60%)	Abundant Manitoba Maple, frequent White Ash, occasional Trembling Aspen			
		Understory (25-60%)	Abundant Chokecherry, frequent North American Red Raspberry (*Rubus idaeus ssp. strigosus*), Creeper species, occasional Alternate-leaved Dogwood			
		Ground Layer (>60%)	Abundant Chokecherry, frequent Eastern Tall Goldenrod, Broad-leaved Enchanter's Nightshade			
3	**FOM4-2** Dry-Fresh Cedar Poplar Mixed Forest	**Canopy** (25-60%)	Frequent Trembling Aspen, Paper Birch (*Betula papyrifera*), occasional Black Cherry	Yellow Sedge, Eastern Ninebark (Regionally Significant, Peel and / or CVC)	This unit is within lands identified as Woodland (NHIC 2022).	This mixed forest community is present on lands north of the active golf course, adjacent to other treed communities and formerly used fairways. This unit is mid-aged with low botanical quality and represents secondary growth arising on managed sites. Evidence of disturbance was observed, including exotic species, trails, dumping, recreational use, noise and disease / death of trees.
		Sub-Canopy (>60%)	Dominant Eastern White Cedar (*Thuja occidentalis*), occasional European Buckthorn			
		Understory (10-25%)	Frequent Eastern White Cedar, occasional Alternate-leaved Dogwood, Chokecherry			
		Ground Layer (25-60%)	Frequent European Buckthorn, Creeper species, Eastern White Cedar			

UNIT	ELC VEGETATION TYPE	COMPONENT (% COVER)	COMPONENT SPECIES	PLANT SPECIES OF CONSERVATION CONCERN	DESIGNATIONS	ADDITIONAL DESCRIPTION AND COMMENTS
4a, 4b	**SWM4-1** White Cedar Hardwood Organic Mixed Swamp	**Canopy** (25-60%)	Abundant Yellow Birch (*Betula alleghaniensis*), frequent Eastern White Cedar, occasional Eastern Hemlock (*Tsuga canadensis*), scarce Balsam Fir (*Abies balsamea*)	Black Ash (Threatened, COSEWIC) – 1 individual	This unit is within lands designated as Woodland and part of the West Credit River Wetland Complex PSW (NHIC 2022).	This mixed swamp is present on lands north of the active golf course, adjacent to other treed communities and formerly used fairways. This unit is mid-aged with medium botanical quality and contains abundant deadfall logs. Evidence of disturbance was observed, including exotic species, recreational use, noise and disease / death of trees.
		Sub-Canopy (>60%)	Abundant Eastern White Cedar, frequent Mountain Maple (*Acer spicatum*)			
		Understory (0-10%)	Frequent Eastern White Cedar, occasional Mountain Maple, Balsam Fir			
		Ground Layer (0-10%)	Frequent Spinulose Wood Fern (*Dryopteris carthusiana*), occasional Sensitive Fern (*Onoclea sensibilis*), scarce Broad-leaved Helleborine (*Epipactis helleborine*), Climbing Nightshade			
5a, 5b, 5c, 5d	**SWM3-2** Poplar Conifer Mineral Mixed Swamp	**Canopy** (25-60%)	Frequent Trembling Aspen, Balsam Poplar (*Populus balsamifera*), occasional White Spruce (*Picea glauca*)	Black Ash (Threatened, COSEWIC) – greater than 10 individuals White Spruce (Regionally Significant, Peel and / or CVC)	This unit is within lands designated as Woodland and part of the West Credit River Wetland Complex PSW (NHIC 2022).	This mixed swamp community is present on lands north of the active golf course, adjacent to other treed communities and formerly used fairways. This unit is mid-aged with medium botanical quality. In general, this unit type is typically where flooding duration is short. Evidence of disturbance was observed, including exotic species, trails, dumping, recreational use, noise, disease / death of trees and flooding.
		Sub-Canopy (>60%)	Abundant Eastern White Cedar, frequent Manitoba Maple, Trembling Aspen, Willow species (*Salix* sp.)			
		Understory (25-60%)	Frequent Eastern Tall Goldenrod, occasional Alternate-leaved Dogwood, Riverbank Grape (*Vitis riparia*), Virginia Clematis (*Clematis virginiana*)			
		Ground Layer (>60%)	Frequent Broad-leaved Enchanter's Nightshade, Sensitive Fern, occasional Eastern White Cedar, Bulblet Bladder Fern (*Cystopteris bulbifera*)			
6	**FOM6-1** Fresh-Moist Sugar Maple - Hemlock Mixed Forest	**Canopy** (>60%)	Dominant Sugar Maple, frequent Eastern Hemlock, occasional Black Cherry, Red Maple (*Acer rubrum*)	Giant Blue Cohosh (Regionally Significant, Peel and / or CVC) Hairy Solomon's Seal (Regionally Significant, Wellington County)	This unit is within lands identified as Woodland (NHIC 2022).	This is a mature mixed forest north of the active golf course. This unit is of medium botanical quality and contains abundant deadfall logs. In general, this unit type occurs in areas with middle to lower slopes and tablelands / bottomlands with complex microtopography. Evidence of disturbance was observed, including exotic species, trails, recreational use and disease / death of trees.
		Sub-Canopy (10-25%)	Occasional Sugar Maple, Eastern Hemlock, scarce American Beech (*Fagus grandifolia*)			
		Understory (25-60%)	Frequent Alternate-leaved Dogwood, Chokecherry, occasional White Ash, scarce Eastern White Cedar			
		Ground Layer (>60%)	Frequent Broad-leaved Enchanter's Nightshade, Wild Sarsaparilla (*Aralia nudicaulis*), Northeastern Lady Fern (*Athyrium filix-femina var. angustum*), Giant Blue Cohosh			

2.5 Wildlife

2.5.1 Wildlife Inventory & Habitat Assessment

2.5.1.1 Approach

In addition to the targeted surveys described in the following sections, a general wildlife survey and habitat assessment was undertaken during all field surveys, as follows:

- Recording all direct wildlife observations and wildlife signs (including browse, track / trails, animal scat, bird nesting activity, tree cavities, burrows and vocalizations) and identifying potential wildlife usage and habitat functions associated with vegetation communities
- Assessing SAR habitat availability
- Assessing potential for *Significant Wildlife Habitat* (SWH) features within the study area.

2.5.1.2 Results

In addition to breeding bird results described in Section 2.5.2, evidence of the following wildlife species was recorded:

- **Mammals** (five species)
    - Eastern Chipmunk (*Tamias striatus*) – vocalization
    - Eastern Cottontail (*Sylvilagus floridanus*)
    - Grey Squirrel (*Sciurus carolinensis*)
    - Raccoon (*Procyon lotor*) – scat
    - Red Squirrel (*Tamiasciurus hudsonicus*)
- **Insects** (two common Odonata species):
    - Cabbage White (*Pieris rapae*)
    - Clouded Sulphur (*Colias philodice*)
- **Herpetofauna** (three species):
    - American Toad (*Anaxyrus americanus*) – one individual observed in Vegetation Unit 4
    - Gray Treefrog (*Hyla versicolor*) – one individual heard calling from Vegetation Unit 4
    - Spring Peeper (*Pseudacris crucifer*) – one individual heard calling from Vegetation Unit 6

Wildlife SAR and SWH are discussed in Section 4.

2.5.2 Avifauna

2.5.2.1 Approach

A breeding bird survey was undertaken by qualified, experienced staff under appropriate weather conditions (i.e. no precipitation, low winds) and during appropriate seasonal timing windows (between May 24th and July 10th) and daily timing windows (between dawn and up to 5 hours after dawn).

Surveys were conducted on June 11th and June 25th, 2021, with the Subject Property and adjacent lands thoroughly covered by walking random transects with frequent stops for observation / listening.

Species presence, abundance and level of breeding evidence was recorded according to the Ontario Breeding Bird Atlas [OBBA] protocols (Bird Studies Canada 2003); these observations were attributed into two Wildlife Survey Units (WSU's):

- WSU 1 – Subject Property (active golf course).
- WSU 2 – Natural areas adjacent to the Subject Property (Vegetation Units 2, 4a, 4b, 5a-d and 6)

Incidental observations were noted during other surveys.

2.5.2.2 Results

In total, 39 species were recorded by WSP in 2021 within and adjacent to the Subject Property (see **Appendix D**).

- **Breeding Species**. 34 species are considered 'breeding' (i.e., 'possible', 'probable' or 'confirmed' breeding evidence). Three species are potential breeders within the local landscape but with no evidence of nesting on the Subject Property: Barn Swallow (*Hirundo rustica*), Canada Goose (*Branta canadensis*) and Mallard (*Anas platyrhynchos*). An additional two species were observed on the Subject Property prior to the breeding season and are presumed to be migrants (i.e., not breeding on or adjacent to the Subject Property): Black-and-white Warbler (*Mniotilta varia*) and Brown Thrasher (*Toxostoma rufum*).
- **MBCA**. 35 species are subject to provisions of the Migratory Birds Convention Act (1994)
- **Habitat Specialists**. The following 'habitat-specific' species (per Freemark and Collins, 1989) were recorded with breeding evidence:
    - **Forest Interior Species**: Five species recorded:

        - American Redstart (*Setophaga ruticilla*) – one individual recorded with 'Probable' breeding evidence in WSU 2.
        - Hairy Woodpecker (*Picoides pubescens*) – one individual recorded with 'Possible' breeding evidence in WSU 1, though this species is likely associated with the offsite woodlands to the north / east.
        - Red-breasted Nuthatch (*Sitta canadensis*) – one individual recorded with 'Probable' breeding evidence in WSU 2.
        - White-breasted Nuthatch – one individual recorded with 'Possible' breeding evidence in WSU 2.
        - Winter Wren (*Troglodytes hiemalis*) – one individual recorded with 'Probable' breeding evidence in WSU 2.
    - **Swamp / Bog or Marsh / Fen Species**: One species recorded:
        - Green Heron (*Butorides virescens*) – one individual recorded with 'Possible' breeding evidence in WSU 2.
    - **Interior/Edge or Edge Species**: 29 species.

Species of Conservation Concern

The term "species of conservation concern" (SCC), in this report, includes the following:

- Species designated by COSEWIC or COSSARO.
    - One species recorded with no breeding evidence: Barn Swallow.
- Species at Risk (SAR) subject to the provisions of the federal Species at Risk Act (SARA)
    - One species recorded with no breeding evidence: Barn Swallow.
- SAR subject to the provisions of the Ontario Endangered Species Act (ESA 2007)
    - One species recorded with no breeding evidence: Barn Swallow.
- Provincially significant species (NHIC S-rank of S1 to S3)
    - None recorded.
- Species of Interest, per the Credit Valley Conservation Species of Conservation Concern Project (2010)
    - 11 species recorded with breeding evidence are considered "Species of Urban Interest":
        - American Redstart – as above.
        - Baltimore Oriole (*Icterus galbula*) – one individual recorded with 'Possible' breeding evidence in WSU 1.

        - Eastern Kingbird (*Tyrannus tyrannus*) – four individuals recorded with 'Probable' breeding evidence in WSU 1.
        - Gray Catbird (*Dumetella carolinensis*) – one individual recorded with 'Possible' breeding evidence in WSU 2.
        - Great Crested Flycatcher (*Myiarchus crinitus*) – two individuals recorded with 'Probable' breeding evidence in WSU 1; one individual recorded with 'Probable' breeding evidence in WSU 2.
        - Hairy Woodpecker – as above
        - Indigo Bunting (*Passerina cyanea*) – two individuals recorded with 'Probable' breeding evidence in WSU 2.
        - Mourning Warbler (*Geothlypis philadelphia*) – one individual recorded with 'Possible' breeding evidence in WSU 2.
        - Northern Flicker (*Colaptes auratus*) – two individuals recorded with 'Probable' breeding evidence in WSU 1; one individual recorded with 'Possible' breeding evidence in WSU 2.
        - Red-breasted Nuthatch – as above.
        - White-breasted Nuthatch – as above.
        - Winter Wren – as above.
    - Two species are considered "Species of Interest":
        - Green Heron – as above.
        - Red-bellied Woodpecker (*Melanerpes carolinus*) – two individuals recorded with 'Probable' breeding evidence in WSU 2.
- 'Area Sensitive' species listed in the SWH Criteria Schedules for Ecoregion 6E (MNRF 2015)
    - Two species each recorded with WSU 2:
        - Red-breasted Nuthatch.
        - Winter Wren.

2.5.3 Wildlife Movement Opportunities

Wildlife movement opportunities across the Subject Property are limited by the lack of natural cover (relative to adjacent lands), anthropogenic land use on the Subject Property and land uses west (residential and agricultural) and south (residential) of the Subject Property. The primary wildlife movement corridor in the area is associated with the West Credit River and the associated natural areas north of the Subject Property (forest and wetland habitats). The West Credit River valley, forest and wetland habitats will be retained in full

and protected with development setbacks, such that no impacts to wildlife movement through the broader landscape are anticipated with the proposed development.

2.6 Aquatic Resources

There are no surface water features on the Subject Property and as a result, there are no features on the Subject Property that have the potential to support fish habitat. The West Credit River is located north of the Subject Property and is identified by the MNDMNRF as having a cold water thermal regime, supporting sensitive species including Brook Trout (*Salvelinus fontinalis*) and Mottled Sculpin (*Cottus bairdii*), in addition to several common, tolerant species including Bluntnose Minnow (*Pimephales notatus*), Brook Stickleback (*Culaea inconstans*), Creek Chub (*Semolitus atromaculatus*) and White Sucker (*Catostomus commersonii*) (LIO; 2022). Within the reach adjacent to the Subject Property, channel morphology consists mainly of flat habitat with the occasional pool along the length of the reach, with two small riffles downstream of Eighth Line. Substrates consist primarily of sand, with a sand / gravel mix in the riffles. Watercress was observed within the reach, indicating evidence of groundwater input to the watercourse (Geomorphix; 2020).

The tributary located east of the Subject Property appears to be a man-made feature intended to direct surface water to a constructed pond that is used to irrigate the golf course. Neither this tributary, nor the irrigation pond are present on historical aerial photographs before 1980 (Geomorphix; 2020). When water levels in the pond permit, this feature outlets to the West Credit River northwest of the Subject Property. Based on the intermittent / ephemeral nature of the tributary (as evidenced by its small size, no evidence of morphological development and poor channel definition (Geomorphix; 2020)) and steep gradient, this feature is presumed to support fish indirectly, through nutrient and allochthonous inputs to downstream habitat.

3.0 DEVELOPMENT PROPOSAL

This section incorporates information from the Functional Servicing & Stormwater Management Report, Empire Erin, 5525 8th Line (Urbantech Consulting; May 2022) and the Hydrogeological Assessment, Water Balance Assessment and Source Water Protection Analysis, Erin Fairways Subdivision, 5525 Eighth Line, Town of Erin, ON (Terra-Dynamics Consulting Inc. May 2022). The reader is directed to these reports prepared under separate cover for additional detail.

3.1 Proposed Land Uses

The Draft Plan of Subdivision (Armstrong Planning; February 7, 2022), included in **Appendix E** has a total development envelope of 13.859 ha which is comprised of residential single detached blocks, residential townhouse blocks, a community park and open space including:

- Residential Singles – 197 units max. (6.565 ha);
- Townhouses – 91 units max. (1.714 ha);
- One Underground Stormwater Management Block (0.770 ha);
- Park (0.691 ha);
- Open Space (0.589 ha);
- Roads (3.530 ha).

As stated in Section 2.2.3, measured groundwater levels across the site range from 0.7 m BGS to 6.9 m BGS under current (pre-development) conditions. Per Drawing 2.2E in the Functional Servicing Report (Urbantech; 2022), the majority of the development will be constructed on fill above the existing ground. As such, servicing installation is not expected to impact existing groundwater movement. As the groundwater information is currently limited in the southwest corner of the Subject Property (constructed in an area of cut rather than fill), further analysis will be required for this area of the site at detailed design in order to identify any potential interaction with groundwater movement. However, pre-development groundwater levels in this area have been within the underlying aquitard (Terra-Dynamics, 2022).

The forest (FOD3-1, FOM4-1) and PSW treed swamp communities (SWM4-1 and SWM 3-2) adjacent to the Subject Property are not within the development envelope and will be retained in full, with development setbacks and other mitigation / protection measures discussed herein. The Draft Plan of Subdivision has been included on **Figure 3**.

3.2 Stormwater Management

Discussion herein is based on the Functional Servicing & Stormwater Management Report, Empire Erin, 5525 8th Line (Urbantech Consulting; May 2022). Relevant drawings and technical information are included in **Appendix F**. The Stormwater Management (SWM) criteria for the site were established based on the Pre-consultation Meeting Response & Development Application Submission Requirements for 5525 Eighth Line, Town of Erin (Town of Erin; August 25, 2021) with the Town of Erin, County of Wellington and the CVC, and based on criteria within the following technical guidelines:

- Town of Erin Engineering Design Standards Manual (Draft, November 2021);
- Credit Valley Conservation Stormwater Management Criteria (Credit Valley Conservation; August 2012);
- Stormwater Management Planning and Design Manual (Ministry of Environment, Conservation and Parks; March 2003);
- Erosion and Sediment Control Guide for Urban Construction (Toronto and Region Conservation Authority; 2019); and

- Low Impact Development Stormwater Management Planning and Design Guide (Credit Valley Conservation and Toronto and Region Conservation Authority; 2010).

Key elements of the SWM approach:

- **Water quantity control** will be achieved through a combination of: underground storage and two dry pond SWM facilities.
    - A catchment of 3.95 ha of roof drainage is to be collected by a cleanwater collector third pipe system and conveyed to an underground storage facility in the North SWM block. The third pipe system and underground storage facility have been designed to control up to and including the 5-year storm event from the 3.95 ha roof catchment area. For storm events greater than the 5-year return period, discharge from the third pipe system is to overflow to the major system and is to be conveyed to the dry pond facility in the North SWM block.
    - The dry pond facility in the North SWM block is proposed to control flows up to and including the 100-year storm event. The dry pond facility will receive flows from an area of 7.35 ha within the Subject Property and 0.70 ha of external road drainage from the future urbanized Eighth Line roadway via the proposed storm sewer.
    - A second dry pond facility (East SWM block, within Block 31; shown on SWM drawings included in **Appendix F**) will receive flows from an additional 0.96 ha of roof drainage (conveyed via a separate cleanwater collector third pipe system) and 0.38 ha of rear-lot drainage. The East SWM block has been designed to control flows up to and including the 100-year storm event.
    - The remaining 1.92 ha of clean drainage (from rear lots [Block 24 and 28], park block [Block 30] and open space block [Block 31]) is to drain uncontrolled to the natural heritage system.
- **Climate change considerations** have been considered in the design of the SWM system for the proposed development. Per Table 4.3 in the Function Servicing Report (Urbantech; 2022), there are slight exceedances of the target flows for the 10-year and 50-year storm events. However, the pre-development target flows are still met for the remaining storm events under the future projected post-development conditions.
- **Enhanced level (80% TSS removal) of water quality control** is achieved via a treatment train approach – infiltration of clean rooftop runoff, two Oil/Grit Separator (OGS) units and the dry pond facility in the North SWM block.
    - The proposed OGS will provided 50% TSS removal and the dry pond in the North SWM block will provide 60% TSS removal, resulting in an overall treatment of 80% TSS removal.

- Quality control for the East SWM block is to be provided by infiltration, via a stone media layer at the base of the proposed dry pond facility. The storage volume to be provided by the proposed infiltration media has been sized to provide 80% TSS removal.

- Based on preliminary analysis, specific SWM thermal mitigation measures are not expected to be required given the proposed SWM approach, including infiltration galleries, design of the dry pond facilities and the distance from the dry pond outlets to receiving waterbodies. With proper implementation of these recommended measures (infiltration, relatively quick draw-down times in dry ponds compared to wet pond facilities and potential for infiltration and filtering of water outletting from the dry pond facilities in the natural heritage system) no adverse impact the thermal regime of the West Credit River are anticipated.

- **Erosion control** has been accounted for in the design of the SWM facilities, as they each provide extended detention of the 25 mm storm event.

- A summary of **low impact development measures** proposed for the site has been included below:

  - A third pipe cleanwater collection system will convey 0.96 ha of clean roof runoff to the East SWM block;

  - An infiltration gallery within the East SWM block will infiltrate a minimum of 15 mm over the 0.96 ha roof area collected by the third pipe system, by providing a total infiltration storage volume of 150 m^3 in the clear stone base of the East SWM facility;

  - A third pipe cleanwater collection system will convey 3.95 ha of clean roof drainage to the North SWM block; and

  - An infiltration gallery within the North SWM block will infiltrate a minimum of 15 mm over the 3.95 ha roof area collected by the third pipe system, by providing a total infiltration storage volume of 620 m^3 in the clear stone base of the underground storage facility.

  - These low impact development measures have been designed to maintain the required groundwater recharge rates upgradient of the wetland communities adjacent to the Subject Property. Further detail on the site hydrogeology / water balance assessment is included in Section 3.3 and in the Hydrogeological Assessment (Terra-Dynamics; 2022).

3.3 Hydrogeology / Water Balance

Information related to the water balance analysis is summarized below. For additional details, refer to the Hydrogeological Assessment, Water Balance Assessment and Source Water Protection Analysis, Erin Fairways Subdivision, 5525 Eighth Line, Town of Erin, ON (Terra-Dynamics Consulting Inc. May 2022).

Relevant drawings and technical information are included in Appendix F. Key results and recommendations from that study are as follows:

- Stratigraphic conditions beneath the Subject Property consist predominantly of surficial topsoil and/or fill overlying fill materials consisting of gravel and gravelly sand, to silty sand and silt, with a thickness of approximately 3 metres above the underlying silty sand to sandy silt till aquitard.
- Groundwater elevations Recorded groundwater levels across the Subject Property under current conditions ranged from 1.2 m BGS (BH21-10) to 6.9 m BGS (BH21-3) over spring to summer 2021 monitoring period.
- Groundwater elevation contours generally mimic the prevailing topography of the Site. Groundwater flows in a north-northwest direction towards the West Credit River / PSW.
- Site Water Balance. Annual pre-development infiltration at the Subject Property is projected to be reduced by a maximum of 9,524 m3 under the post-development condition (i.e., from 47,081 m3 to 37,557 m3). It is noted that:
    - Pre-development recharge rates can be maintained to 80% or greater, if all 15 mm or less precipitation events are infiltrated from “clean” impervious surface roof runoff. This is based upon:
        - Infiltration of ‘clean’ runoff from 4.91 hectares of impervious areas (i.e. multiplied by 605 mm/year) via a 3rd pipe system to infiltration areas at the stormwater management facilities; and
        - 5.21 hectares of continuing recharge for the permeable areas of lots, the park and the stormwater management areas. However, more permeable soils could be specified for fill in order to increase this post-development permeable recharge rate.
- Wetland Water Balance. The water balance for the wetlands downgradient of the Subject Property (Vegetation Units 4a and 5a) will be maintained post-development, this is based upon a number of considerations:
    - Direct precipitation will continue to the wetlands. August 2021 to March 2022 water level monitoring at the wetlands has indicated that the water levels in the swamps were generally below ground surface with limited responsiveness to precipitation events and generally a downwards vertical gradient.
    - Pre-development groundwater recharge rates will be maintained immediately upgradient of the wetlands because development is set-back from the wetlands, (i.e., 0.78 ha for Wetland 4a (SWM4-1) and 1.51 ha for Wetland 5a (SWM3-2)).

- Discontinued use of the irrigation pond downgradient of Wetland 4a; it is possible the pond lowered groundwater levels below the wetland during summer months. As the pond is unlikely to be in operation following residential development of the Subject Property, this should benefit the wetland hydrology as the irrigation pond will no longer draw down wetland water levels during the growing season.
- Stormwater management infiltration of clean roof runoff will occur at the two proposed facilities upgradient of the wetlands providing infiltration of events up to 15 mm.
- Lot-level infiltration will occur in pervious areas upgradient on-site.
- Based on these assumptions, and with the implementation of recommended mitigation measures, post-development wetland recharge from the Subject Property is expected to increase by 1,185 m3 per year for Wetland Unit 4a (8,078 m3 to 9,263 m3; an increase of 15% from pre-development conditions) and by 4,972 m3 per year for Wetland Unit 5a (27,140 m3 to 32,112 m3; an increase of 18% from pre-development conditions).
    - Note that while this represents an increase in the amount of groundwater directed to the wetlands in the post-development condition, it is expected that any excess groundwater that is not utilized by the vegetation in the wetlands will continue to flow through the sand layer under the wetlands and discharge into the West Credit River.
- As requested by CVC during their review of the Scoped EIS Terms of Reference (WSP; October 2021, downgradient wetlands with the potential to be impacted by the proposed development have been assessed using criteria in Toronto and Region Conservation Authority's (TRCA) Wetland Water Balance Risk Evaluation (TRCA; November 2017). Each of the downgradient wetlands (i.e., Wetland Units 4a and 5a) have been determined to have a High Hydrological Sensitivity based on the magnitude of hydrological change within the wetland catchments, ELC community type / wetland sensitivity and comments received from CVC (email from Elizabeth Paudel, November 19, 2021). Section 4.7 of the Hydrogeological Assessment (Terra-Dynamics; 2022) includes commentary on the Wetland Risk Evaluation and outlines future study requirements based on that assessment.

4.0 POLICY ASSESSMENT

4.1 Fisheries Act (1985; Updated 2019)

4.1.1 Overview of Key Policies

The Canadian Fisheries Act provides provisions for the protection of fish and fish habitat. In 2015, the Government of Canada set about updating and modernizing the Fisheries Act. Updates to the Fisheries Act were included in Bill C-68, which came into effect on August 28, 2019. Fish and fish habitat protection provisions of the Fisheries Act are also detailed on the Fish and fish habitat policy protection statement, August 2019[1] on DFO's website. Specifically, these provisions state:

> **Section 34.4 (1)**: "No person shall carry on any work, undertaking or activity, other than fishing that results in the death of fish."; and
>
> **Section 35 (1)**: "No person shall carry on any work, undertaking or activity that results in harmful alteration, disruption or destruction of fish habitat."

As such, proponents that plan to undertake activities in or near water have the potential to negatively affect fisheries, and as such, are responsible for avoiding, mitigating and possibly offsetting potential negative effects. Avoidance is achieved by undertaking measures which avoid the potential for the project to cause the death of fish or otherwise alter, disrupt or destroy fish habitat. These measures include project design considerations, location of activity, and timing of works. Mitigation is implemented by following best practices such as those described in the 'Measures to protect fish and fish habitat on DFO's Projects Near Water Website[2].

Any negative residual impacts to fish and fish habitat that remain following the implementation of avoidance and mitigation measures, is considered to have the potential to negatively affect the fishery. This potential for negative effects has to be reviewed by DFO under the Fisheries Act. If DFO determines that negative effects are likely as a result of the project, then a *Fisheries Act Authorization* (FAA) will be required.

4.1.2 Study Assessment

Applicability

[1] https://www.dfo-mpo.gc.ca/pnw-ppe/policy-politique-eng.html

[2] https://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html

There are no watercourses on the Subject Property that are subject to the Fisheries Act. The West Credit River and an un-named tributary are located immediately to the north and east; potential impacts to these features have been considered herein.

Results and Conclusions:

No direct impacts to fish and fish habitat are anticipated to occur as a result as the proposed development. Potential impacts are limited to downstream indirect or secondary impacts (i.e., erosion and sedimentation, hydrogeological changes, introduction of contaminants) of development. With the proper installation and operation of the standard mitigation measures outlined in Section 5 (specifically the ESC and SWM measures), potential impacts on aquatic habitat adjacent to the Subject Property will be mitigated such that the project complies with the Fisheries Act and no FAA will be required.

4.2 Migratory Birds Convention Act (1994)

4.2.1 Overview of Key Policies

The Migratory Birds Convention Act, MBCA (1994) and Migratory Birds Regulations, MBR (2014) protect most species of migratory birds anywhere they are found in Canada, including surrounding ocean waters, regardless of ownership. General prohibitions under the MBCA and MBR protect migratory birds, their nests and eggs and prohibit the deposit of harmful substances in waters / areas frequented by them.

The MBR includes an additional prohibition against incidental take, defined by Environment and Climate Change Canada (ECCC) as:

> *"The inadvertent harming, killing, disturbance or destruction of migratory birds, nests and eggs."*

The Government of Canada communicates policies and guidelines to protect migratory birds, their eggs and nests. There is guidance on the Government of Canada website to minimize the risk of incidental take effects on migratory birds, achieve compliance and maintain sustainable populations of migratory birds[3].

Compliance with the MBCA and MBR is best achieved through a due diligence approach, which identifies potential risk, based on a site-specific analysis in consideration of the Avoidance Guidelines and Best Management Practices information on the Government of Canada website.

[3] https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/guidelines.html

4.2.2 Study Assessment

Applicability:

Implications of the MBCA have potential to occur during the construction phase of the project when the land is brought to grade and grubbed of vegetation, potentially removing nests of migratory birds.

Results and Conclusions:

Thirty-five migratory bird species subject to the MBCA were recorded as 'breeding' within and adjacent to the Subject Property. Most are generalist and/or urban-adapted tolerant species and no habitat unique in the local landscape will be impacted by proposed works.

Compliance with the MBCA will be achieved using the following due diligence approach:

- Proponent awareness of the MBCA, potential for nesting in the area, and potential for impacts to migratory birds, nests and eggs. Adjacent areas outside of the development envelope provide suitable habitat for nesting of forest and generalist species.
- Implementation of the following avoidance and mitigation measures, where possible:
    - Avoiding works (i.e., vegetation / potential nesting habitat removal) within the "regional nesting period" for this area[4]
    - Avoiding works in key sensitive locations
    - Minimizing area of vegetation removals
    - Implementing post-construction habitat creation / restoration

Recommending Best Management Practices (BMPs) during construction to minimize potential indirect impacts to vegetation / potential nesting habitat outside of the direct footprint.

[4] https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html

4.3 Species at Risk Act (2002)

4.3.1 Overview of Key Policies

The federal Species at Risk Act (SARA) includes prohibitions to protect individuals of listed Species at Risk, including:

- *No person shall kill, harm, harass, capture or take an individual of a Threatened, Endangered or Extirpated species.*
- *No person shall possess, collect, buy, sell or trade an individual of a Threatened, Endangered or Extirpated species, or any part or derivative of such an individual.*
- *No person shall damage or destroy the residence of one or more individuals of a Threatened or Endangered species, or of an Extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.*

These prohibitions apply on federal lands throughout Canada, on private lands for aquatic and migratory birds which are protected by the MBCA and also listed as Endangered, Threatened, or Extirpated under Schedule 1 of SARA. Application to non-federal lands and/or species not protected under SARA on federal lands may be determined by the Governor in Council and/or provincial ministries on a case by case basis.

SARA also includes provisions to protect *critical habitat*; these are complex and vary according to the species in question and the location of the critical habitat. Generally, critical habitat protection applies to Threatened, Endangered and Extirpated species.

4.3.2 Study Assessment

Applicability:

The project is on non-federal (private) lands and there is no order by Governor in Council; hence SARA only applies to aquatic and migratory bird species / habitat. There is potentially suitable habitat for migratory birds subject to SARA within the Subject Property and general area. Habitat suitability and presence / use were evaluated through field inventories and habitat assessments described in Section 2.

Results and Conclusions:

Individuals and Residences:

One SARA-listed migratory bird species was recorded on the Subject Property: Barn Swallow (Threatened, Schedule 1) – recorded as a flyover with no evidence of breeding within the Subject Property.

We are aware of no downstream critical habitat for aquatic SAR species which would be impacted by the proposed activities with the proper implementation of recommended mitigation and protection measures.

Critical Habitat:

No critical habitat for SARA-listed aquatic or migratory bird species is present within the Subject Property and none is known on adjacent lands where there is potential for indirect impact.

Recommendations:

Implement all recommended during-construction measures / best-management practices to mitigate potential impact to SAR individuals and recommended SWM measures to mitigate potential impacts to downstream aquatic habitat.

4.4 Endangered Species Act (2007)

4.4.1 Overview of Key Policies

Species designated as *Threatened or Endangered* by the Committee on the Status of Species at Risk in Ontario (COSSARO), otherwise known as Species at Risk in Ontario (SARO), and their habitats (e.g. areas essential for breeding, rearing, feeding, hibernation and migration) are automatically afforded legal protection under the Endangered Species Act (ESA) (Government of Ontario 2007). ESA Subsection 9(1) states that:

"No person shall,

(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;

(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,

(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,

(ii) any part of a living or dead member of a species referred to in subclause (i),

(iii) anything derived from a living or dead member of a species referred to in subclause (i); or

(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).

Clause 10(1) (a) of the ESA states that:

> *"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species"*

The ESA also calls for the development of species-specific Recovery Strategies and Habitat Regulations. Unlike the *general habitat* of a species, *regulated habitat* may include areas that are currently unoccupied by the species. These areas are commonly referred to as "recovery habitat."

To balance social and economic considerations with protection and recovery goals, the ESA also enables MECP to issue permits or enter into agreements with proponents to authorize activities that would otherwise be prohibited by subsections 9(1) or 10(1) of the Act provided the legal requirements of the Act are met.

4.4.2 Study Assessment

Applicability:

Potentially suitable habitat is present for species afforded protection under the ESA (2007).

Habitat Assessment / Screening:

A SAR habitat suitability evaluation ('screening') for the study area was undertaken in advance of fieldwork. This screening was based on a list of SAR known to occur within the region from a review of various sources including: species included on the Species at Risk regional species list (MNRF; 2015); Ebird website; Ontario Reptile and Amphibian Atlas website; LIO; NHIC website; and DFO aquatic species at risk mapping.

The screening is summarized in **Appendix G**. In that process, we assessed 'reasonable likelihood of presence on the Subject Property' based on the 'key habitats used by species' (based on SARO website habitat descriptions). Considering findings of surveys and habitat suitability, we then assessed 'likelihood and magnitude of impacts to species or habitats'.

Results and Conclusions:

We concluded that for most of the listed species, potential presence on the Subject Property was 'none' or 'minimal' given a lack of suitable or preferred habitat and/or rarity of the species. This was confirmed through field survey results. For these species the likelihood of impacts was also 'none'.

There is potential for use by some species based on one or more of the following factors: the presence of potentially suitable habitat on or in the vicinity of the Subject Property; the relative commonness of species; known records from the local area; and/or habitat requirements are not specific (i.e., they are 'generalists' that use a wide variety of natural and semi-natural habitat types. However, potentially suitable habitat is primarily within the off-site woodland / wetland areas, not on the Subject Property itself. For these potential / confirmed species, we assessed the likelihood of impacts based on field survey results, known records and the proposed activity / development.

Key conclusions are as follows:

- No *Endangered* SAR were recorded during field surveys. There is limited potential for SAR bats to roost within the isolated trees or buildings on the Subject Property, however, we have assessed the likelihood of this as 'minimal' due to the current occupancy and use of the buildings as part of the golf course operation, and the availability of more suitable habitat in the natural areas adjacent to the Subject Property. Mitigation for any individuals that may use habitat within the development envelope is to remove trees and buildings outside of the bat active period (i.e., between November 1 and March 15) in order to avoid impacts to roosting individuals. No net impacts are anticipated.

- One *Threatened* SAR was recorded: Barn Swallow. Two individuals were recorded during breeding bird surveys flying over the Subject Property without breeding evidence. Potentially suitable structures for nesting are present within the Subject Property, however, these were inspected for signs of use and no evidence of nesting was observed. Structure removals will be in compliance with the MBCA (i.e., occur outside of the regional nesting period) and the conversion of potential foraging habitat over the golf course to a residential subdivision is not expected to adversely impact this species as abundant foraging habitat is present throughout the local landscape. No net impacts are anticipated.

- For other SAR with some potentially suitable habitat within or adjacent to the development envelope, but not recorded during field surveys, no impacts are anticipated, based on one or more of the following factors (see **Appendix G**):

    - Sensitive natural features adjacent to the Subject Property (i.e., all woodland and PSW habitats) are being retained in full and protected with development setbacks and other mitigation measures.

    - Limit of potential impacts to non-critical habitat (e.g., non-specific foraging habitat for breeding birds, but not breeding / nesting habitat itself).

    - Presence of abundant and generally much larger / higher quality habitat in the local landscape.

    - Low likelihood of occurrence / not confirmed during field surveys.

    - Mitigation / protection measures such as retention of suitable habitat, encounter protocols, fencing or timing windows to avoid sensitive periods.

4.5 Provincial Policy Statement (2020)

4.5.1 Overview of Key Policies

The Ontario Provincial Policy Statement (PPS), issued under Section 3 of the Ontario Planning Act, identifies natural heritage provisions that restrict development and site alteration in and/or adjacent to certain natural

heritage features (e.g., significant woodlands, wetlands, valleylands, wildlife habitat, habitat of endangered or threatened species, and fish habitat). The current PPS came into effect May 1, 2020. Section 3 of the Planning Act requires that decisions affecting planning matters "shall be consistent with" policy statements issued under the Act (OMMAH 1990). The PPS provides policy direction on land use planning and development matters of provincial interest which protect the natural environment as well as public health and safety.

Per Section 2.1.4 of the PPS, development and site alteration shall not be permitted in:

1. Significant Wetlands in Ecoregions 5E, 6E, and 7E1; and
2. Significant Coastal Wetlands.

Per Section 2.1.5 of the PPS, development and site alteration shall not be permitted in:

3. Significant Wetlands in the Canadian Shield north of Ecoregions 5E, 6E, and 7E;
4. Significant Woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
5. Significant Valleylands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
6. Significant Wildlife Habitat;
7. Significant Areas of Natural and Scientific Interest; and
8. Coastal Wetlands in Ecoregions 5E, 6E, and 7E1 that are not subject to policy 2.1.4(b)

   unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Per Section 2.1.6 of the PPS, "Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements."

Per Section 2.1.7 of the PPS, "Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements."

Per Section 2.1.8 of the PPS, "Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions."

4.5.2 Study Assessment

Based on field surveys, background information and in consideration of relevant guidance documents, an assessment of each feature listed under section 2.1 of the PPS and associated policies, in relation to the proposed development, is provided below:

- **Significant Wetlands in Ecoregions 5E, 6E and 7E1.** The *West Credit River PSW* complex occurs adjacent to the Subject Property; the wetland limits have been delineated and agency-confirmed. Direct impacts to PSW are avoided and these features will be retained in full. Some grading is required within the 30 m development setback adjacent to a portion of Wetland Unit 5 (i.e., on active golf course lands), however a minimum 20 m buffer from the grading limit to the wetland limit will be maintained and no indirect impacts from this grading are anticipated with the implementation of mitigation measures discussed herein.
    - Conclusion: No impacts to PSW form or function, with the implementation of recommended mitigation measures, including SWM and water balance measures.
- **Significant Coastal Wetlands**.
    - Not applicable.
- **Significant Wetlands** in the Canadian Shield north of Ecoregions 5E, 6E and 7E1.
    - Not applicable
- **Significant Woodlands in Ecoregions 6E and 7E.** The woodland adjacent to the Subject Property (Vegetation Units 1 to 6), meets the criteria as a *Significant Woodland* in Wellington County. Direct impacts to *Significant Woodland* are avoided and the feature will be retained in full, with a development setback of 10 m from the agency-confirmed dripline adjacent to the majority of the Subject Property. Grading is required within two small portions of the dripline, adjacent to the northeast corner of the Subject Property, extending into the setback to a maximum of 4 m. No indirect impacts from this grading are anticipated with the implementation of mitigation measures discussed herein.
    - Conclusion: No impacts to *Significant Woodland*.
- **Significant Valleylands in Ecoregions 6E and 7E.** Per criteria in the Natural Heritage Reference Manual (Ontario Ministry of Natural Resource; March 2010), valleyland associated with the West Credit River could be considered significant in Wellington County and the Town of Erin, specifically through the meander belt and contiguous natural vegetation along the West Credit River. These areas will be retained in full and protected with development setbacks and other mitigation measures.
    - Conclusion: No impacts to *Significant Valleyland*.
- **Coastal Wetlands** in Ecoregions 5E, 6E and 7E1 that are not subject to policy 2.1.4(b).
    - Not applicable.

- **Habitat of Endangered and Threatened species.** No confirmed habitat for provincially listed *Endangered* or *Threatened* species were recorded on or adjacent to the Subject Property. Potential SAR habitat associated with the *Significant Woodland* will be retained in full, with a development setback and other mitigation / protection measures.
    - Conclusion: No impacts to *Endangered* or *Threatened* species or their habitat, with the implementation of recommended protection, mitigation and enhancement measures.
- **Adjacent Lands.** Lands adjacent to features identified in Policies 2.1.4, 2.1.5, and 2.1.6 have been considered in the current study, with mitigation / potential impacts to their ecological features and functions addressed in Section 5 of the current report.
    - Conclusion: With recommended retention / protection, mitigation and enhancement measures identified herein, we anticipate no negative impacts to those features or their ecological functions.
- **Significant Wildlife Habitat (SWH).** Based on field surveys results and review of secondary source information, four Candidate SWH types and one Confirmed SWH type were identified as having the potential to occur adjacent to the Subject Property (all outside of the development envelope):
    - *Bat Maternity Colonies*: **Candidate** habitat for this SWH criteria is present in the FOM, FOD and SWM vegetation communities (comprising the *Significant Woodland* and PSW) adjacent to the Subject Property. No targeted surveys were completed as there will be no impacts to potential SWH habitat – aside from potential removal of hazard trees along the woodland edge, no tree removals are proposed and the woodland / wetland habitat will be protected with setbacks. Any required hazard tree removals will be completed outside of the active bat period (i.e., November 1 to March 15) to ensure that no direct harm to SAR bat individuals potentially using the area occurs (including potential day-roosting bats).
    - *Turtle Wintering Areas*: **Candidate** habitat for this SWH criteria is present in the West Credit River and pond adjacent to the Subject Property. No targeted surveys were completed as there will be no impacts to potential SWH habitat – The West Credit River and pond will not be directly impacted by the proposed development, and both will be protected with development setbacks and other mitigation / protection measures.
    - *Amphibian Breeding Habitat (Wetlands):* **Candidate** habitat for this SWH criteria is present in the PSW (i.e., SWM vegetation communities). No targeted surveys were completed as there will be no impacts to potential SWH habitat and no potential amphibian movement corridors are present in the Subject Property (due to the lack of natural cover and anthropogenic land use). All wetland habitat will be retained and protected via a development setback and other mitigation / enhancement measures discussed herein (e.g., SWM and water balance).
    - *Special Concern and Rare Wildlife Species*: While no Special Concern or Rare wildlife species were recorded by WSP during field investigations, NHIC has records of Snapping

Turtle (*Chelydra serpentina*), a *Special Concern* species, in the vicinity of the Subject Property. The mitigation measures recommended herein will protect Snapping Turtle, and the most suitable habitat for this species within the West Credit River and the PSW, which will be retained in full with development setbacks and other mitigation / protection measures described herein.

- *Deer Winter Congregation Areas*: **Confirmed** habitat for this SWH criteria is present in the *Significant Woodland* adjacent to the Subject Property, as mapped by LIO (shown on **Figure 1**). This SWH is generally coincident with the FOM, FOD and SWM vegetation communities (i.e., coincident with the *Significant Woodland*). This SWH will not be directly impacted by the proposed development and will be protected from indirect impacts via development setbacks and other mitigation / protection measures.
- Conclusion: No Candidate or Confirmed SWH is present within the Subject Property / development envelope. With the implementation of recommended protection, mitigation and enhancement measures described herein, the proposed development will not result in negative impacts to candidate or confirmed SWH adjacent to the Subject Property.

- **Areas of Natural and Scientific Interest (ANSI).**
  - No ANSIs are present.
- **Fish Habitat**. No Fish Habitat is present within the development envelope. Potential indirect impacts to adjacent features (West Credit River and un-named tributary) that support fish habitat are addressed through the proposed site / SWM design, buffers and other mitigation measures described herein.
  - Conclusion: Potential impacts to fish habitat are addressed through the proposed development design, buffers and other mitigation measures described herein.

4.5.2.2 Conclusions

With recommended mitigation and protection measures, including commitments to future work, the proposed development is consistent with the natural heritage policies of the PPS.

4.6 County of Wellington Official Plan

4.6.1 Overview of Key Policies

The County of Wellington Official Plan (Office Consolidation, 2021) identifies a '*Greenlands System*' that includes features and areas that are part of Wellington's natural heritage or areas in which natural or human-made conditions may pose a threat to public safety. These areas include:

- Wetlands;

- Environmentally Sensitive Areas;
- Streams and valley lands;
- Ponds, lakes and reservoirs;
- Areas of natural and scientific interest;
- Woodlands;
- Fish and wildlife habitat;
- Flood plains and hazardous lands; and
- Threatened or endangered species.

The *Greenlands System* is divided into two broad categories: *Core Greenlands* and *Greenlands*. The *Greenlands System* will be maintained or enhanced. Activities which diminish or degrade the essential functions of the *Greenlands System* will be prohibited. Activities which maintain, restore or, where possible, enhance the health of the *Greenlands System* will be encouraged where reasonable.

As per policies of the County of Wellington Official Plan (2021), where development is proposed in the *Greenland System* or on adjacent lands, an environmental impact assessment is required to evaluate potential impacts and consider enhancement of the natural area.

A summary of key policies is provided below:

- **Wetlands**.
    - Development and site alteration will not be permitted in wetlands which are considered provincially significant. All other wetlands will be protected in large measure and development that would seriously impair their future ecological functions will not be permitted.
- **Habitat of Endangered or Threatened Species and Fish Habitat**.
    - Development and site alteration will not be allowed in significant habitat of *Endangered* or *Threatened* species except in accordance with provincial and federal requirements.
    - Development or site alteration adjacent to significant habitat of *Endangered* or *Threatened* species shall require a satisfactory Environmental Impact Assessment that demonstrates there will be no negative impact on the significant habitat of *Endangered* and *Threatened* species or its ecological function.
    - Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.
- **Hazardous Lands**.
    - Includes areas subject to flooding hazards and erosion hazards and hazardous sites that could be unsafe for development or site alteration.

- Development shall be directed away from areas in which conditions exist which would pose risks to public health and safety or property caused by natural hazards.

- **Habitat**.
  - Development and site alteration shall not be allowed in SWH unless it has been demonstrated that there will be no negative impacts on the habitat or its ecological functions.
  - Development and site alteration shall not be allowed in fish habitat except in accordance with provincial and federal requirements.

- **Natural and Scientific Interest**.
  - ANSI's are included in the *Greenlands System*.
  - Both provincially and regionally significant ANSI's will be protected from development or site alteration which would have a negative impact on the natural feature or its ecological function.

- **Streams and Valleylands**.
  - All streams and valleylands will be protected from development or site alterations that would negatively impact on the stream or valleyland or their ecological functions.

- **Woodlands**.
  - In the Urban System, woodlands over 1 ha are considered to be significant by the County and are included in the *Greenlands System*.
  - Significant woodlands will be protected from development or site alterations which would negatively impact the woodlands or their ecological functions.

- **Environmentally Sensitive Areas (ESA's)**.
  - ESA's as determined by the County from previous studies are included in the *Greenlands System*.
  - The areas will be protected from development or site alterations which would negatively impact them or their ecological functions.

- **Ponds, Lakes and Reservoirs**.
  - Pond's lakes and reservoirs are included in the Greenlands System where the County determines they require protection.
  - These areas will be protected from development or site alterations which would negatively impact them or their ecological functions.

4.6.2 Study Assessment

Greenlands / *Core Greenlands* designated natural features are present on lands adjacent to the Subject Property. None is identified on the Subject Property. Considering results of the current study (background review and field survey findings), we have evaluated relevant natural heritage policies (i.e., The Greenlands System, per Part 5), as follows.

- **Wetlands**.
    - See discussion in Section 4.5.2 re; PSWs. No non-PSW wetlands are present on or adjacent to the Subject Property.
- **Habitat of Endangered or Threatened Species and Fish Habitat**.
    - See discussion in Section 4.5.2.
- **Hazardous Lands**.
    - No hazardous lands are present on the Subject Property.
- **Habitat**.
    - See discussion in Section 4.5.2.
- **Areas of Natural and Scientific Interest**.
    - See discussion in Section 4.5.2.
- **Streams and Valleylands**.
    - See discussion in Section 4.5.2.
- **Woodlands**.
    - See discussion in Section 4.5.2.
- **Environmentally Sensitive Areas**.
    - No ESA's are identified on the Subject Property. ESA's that may be present adjacent to the Subject Property will not be directly impacted by the proposed development. With recommended retention / protection, mitigation and enhancement measures identified herein, we anticipate no negative impacts to ESA's or their ecological functions that may be present on adjacent lands.
- **Ponds, Lakes and Reservoirs**.
    - No ponds, lakes or reservoirs are present on the Subject Property. There is a small, man-made pond located north of the Subject Property that will not be directly impacted by the proposed development. With recommended retention / protection, mitigation and enhancement measures identified herein, we anticipate no negative impacts to this pond or its ecological function.

4.6.3 Policy Compliance

No development or site alteration is proposed within the *Greenlands System* or *Core Greenlands*; these will be maintained in full, with development setbacks and other mitigation / protection measures. Development on adjacent lands (i.e., the golf course lands encompassed by the development envelope) will result in no adverse impacts to features and functions of natural areas on adjacent lands, with implementation of recommended retention, protection and mitigation measures discussed herein.

4.7 Town of Erin Official Plan

4.7.1 Overview of Key Policies

The Town of Erin Official Plan (Office Consolidation 2021) includes policies that apply to *Natural Heritage Resources*, many of which are designated as *Greenlands*. The Town of Erin encourages the protection and enhancement of the natural heritage of the Town. A summary of key policies that apply to *Natural Heritage Resources* is provided below:

- **Wetlands**.
    - Development and site alteration will not be permitted in wetlands which are considered provincially significant. All other wetlands will be protected in large measure and development that would seriously impair their future ecological functions will not be permitted.
- **Rivers, Streams and Valleylands**.
    - Development adjacent to a river or other watercourse should respect both the scenic and functional qualities of the feature.
    - Minimum setbacks for new development or redevelopment adjacent to the watercourse shall be developed through an environmental impact assessment.
- **Floodways and Hazard Lands**.
    - Development will be directed away from areas in which conditions exist which would pose risks to public health and safety.
- **Habitat of Endangered or Threatened Species**.
    - Development and site alteration will not be allowed in significant portions of the habitat of *Endangered* or *Threatened* species.
    - Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements.
- **Fisheries Policies**.

- The town will endeavour to protect fish habitat by maintaining or enhancing the quality of groundwater and surface water reaching the Town's rivers and streams; maintain or re-establishing tree or other vegetative cover adjacent to watercourses; providing access to fishery resource areas through co-operation with private and public landowners; and minimizing or eliminating thermal impacts on the watercourse.

- **Areas of Natural and Scientific Interest**.
  - ANSI's may be included in the *Greenlands* designation where they have been determined to be provincially significant or determined by the County to be regionally significant.
  - Life science areas (plant and animal communities) will be protected from any development or site alteration which would have a negative impact on the life science feature or its ecological function.
  - Earth science areas (drumlins, eskers, spillways) will be protected in large measure from development or site alterations which would significantly alter their nature or earth science values.
- **Woodlands**.
  - The Core Greenlands designation may include wooded areas, particularly where these are also associated with other natural heritage features such as wetlands.
  - Upland woodlands over 10 ha are considered to be significant by the County of Wellington.
  - These woodlands will be protected from development and site alterations which would have a significant negative impact on the woodlands or their ecological functions.
- **Natural Heritage Corridors**.
  - The Town encourages the connection of natural heritage features within the Town, but also having regard to linkages beyond the Town's boundary.

4.7.2 Study Assessment

Natural Heritage Resources per Section 3.0 of the Town of Erin Official Plan (2021) are present on lands adjacent to the Subject Property. Considering results of the current study (background review and field survey findings), we have evaluated relevant natural heritage policies (i.e., Natural Heritage Resources per Section 3.0), as follows.

- **Wetlands**.
  - See discussion in Section 4.5.2 and Section 4.6.2.
- **Rivers, Streams and Valleylands**.

- See discussion in Section 4.5.2 and Section 4.6.2.

- **Floodways and Hazard Lands**.
  - See discussion in Section 4.6.2.
- **Habitat of Endangered or Threatened Species**.
  - See discussion in Section 4.5.2 and Section 4.6.2.
- **Fisheries Policies**.
  - See discussion in Section 4.5.2 and Section 4.6.2.
- **Areas of Natural and Scientific Interest**.
  - See discussion in Section 4.5.2 and Section 4.6.2.
- **Woodlands**.
  - See discussion in Section 4.5.2 and Section 4.6.2.
- **Natural Heritage Corridors**.

See discussion in Section 2.5.2.

4.7.3 Conclusions

No development or site alteration is proposed within *Natural Heritage Resources* or *Greenlands*; these will be maintained in full, with development setbacks and other mitigation / protection measures. Development on adjacent lands (i.e., the golf course lands encompassed by the development envelope) will result in no adverse impacts to features and functions of natural areas on adjacent lands, with implementation of recommended retention, protection and mitigation measures discussed herein.

4.8 Credit Valley Conservation

The Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (Ontario Regulation 156/06), is a regulation issued under the Conservation Authorities Act, R.S.O. 1990. Through this, CVC has the responsibility to regulate activities in natural and hazardous areas (e.g., areas in and near rivers, streams, floodplains, wetlands, slopes and shorelines).

A permit will be required from the CVC under Ontario Regulation 160/06 to proceed with site alteration within regulated areas. In addition, site alteration proposed within 120 m of these features, requires the completion

of an EIS to evaluate and demonstrate that there will be no negative impacts on the identified natural feature or its ecological functions, as described under Ontario Regulation 160/06.

4.8.1 Study Assessment

Per CVC online mapping, and as confirmed through the field work described herein, the proposed development is within an area *Regulated* by CVC under Ontario Regulation 160/06 – based on the presence of wetland, watercourse and floodplain, all associated with the West Credit River valley and The West Credit River PSW complex to the north. An associated regulation limit covers the northern portion of the Subject Property.

No development is proposed within regulated features. An evaluation of regulated features is as follows:

- Aside from select areas where grading is required along the edge of the Subject Property, no development is proposed within 30 m of the confirmed / surveyed PSW wetland limit. All wetland habitat will be retained in full and no indirect impacts are anticipated with the implementation of recommended mitigation / protection measures.
- No development is proposed within 30 m of the West Credit River or it's tributary.
- No development is proposed within hazard lands associated with the West Credit River.

4.8.2 Conclusion

With the implementation of recommended mitigation and protection measures, no adverse impacts to significant natural features or their hydrological or ecological functions are anticipated to result from the proposed development.

5.0 IMPACTS & MITIGATION

5.1 Impacts

This section reviews potential impacts or condition changes to natural environmental features on or bordering the Subject Property, on the basis of direct activities (e.g., construction activities such as clearing and grading) or indirect activities (e.g., occupancy activities such as dumping of waste material and creation of indiscriminate trails).

Currently, the Subject Property consists of anthropogenic, manicured vegetation associated with the active golf course. These are comprised of turfgrass, planted trees and typical successional / tolerant species. More sensitive / higher quality habitats are present on adjacent lands to the north (*Significant Woodland*,

PSW and coldwater fish habitat). The development envelope is restricted to the Subject Property and is limited to the lands that are currently used for the active golf course operation. Direct impacts to the adjacent natural features have been avoided.

The primary concerns relate to potential indirect impacts to the retained natural environmental features on the Subject Property and on adjacent lands. Potential indirect impacts include, for example, construction-related impacts to the edges of the retained woodland, changes in surface and groundwater inputs to receiving areas, as well as post-development occupancy activities.

Potential impacts to natural heritage features and functions on lands adjacent to the Subject Property have been assessed in consideration of:

- Existing conditions based on background information and field surveys conducted by WSP in 2021.
- The proposed site development plan and site grading.
- The SWM strategy, including water balance.

In **Table 2**, each potential impact factor is reviewed in terms of anticipated and residual effects, as well as proposed mitigation. The identified mitigation measures will be incorporated with appropriate wording on construction drawings and grading plans that will be prepared prior to any site grading (following Draft Plan approval). The development layout, environmental features, and environmental management notes are provided in **Figure 3**.

5.2 Mitigation Measures

Ecological impacts that might reasonably be expected by the proposed development have been mitigated as follows, and are described in more detail in the sections below:

1. Direct impacts to the *Significant Woodland* and the West Credit River valley (including the PSW) will be avoided with the proposed draft plan. Due to the change in elevation across the Subject Property and associated fill requirements to facilitate servicing, grading is required in some areas within the 10 m dripline setback and 30 m wetland setback. See discussion in Section 5.2.1.1.
2. Future potential occupancy-related impacts will be mitigated through:
    a. Installing permanent fencing at the development limit. Permanent fencing (e.g., chain link) will be installed at the development limit to prevent intrusion into the retained natural areas. This will also prevent mammals from accessing the development envelope and direct any individuals to more suitable, retained habitat. No gates will be permitted.
    b. Installing ‘Sensitive Features Limit’ Signage at the development – natural feature interface.
    c. Provision of an ‘Environmental Information Brochure’ is recommended.

3. Potential impacts to migratory birds will be mitigated using appropriate construction timing windows and/or other measures to demonstrate compliance with the MBCA.

5.2.1 Setbacks

Development setbacks delineate an area that provides a physical separation buffer between the Draft Plan limit and retained natural heritage features. The intervening buffer area can be enhanced and managed to provide additional protection to the natural feature from direct and indirect impacts associated with construction and occupancy / changed land use.

As noted above, given the existing site topography, some grading is required within the woodland and wetland setbacks to minimize the need for retaining walls where possible, and match existing grades adjacent to the Subject Property. There are no direct impacts to retained natural heritage features adjacent to the Subject Property as no grading is proposed within the woodland or wetland limits (minimum of 6 m setback maintained for the dripline (10 m setback maintained across the majority of the Subject Property) and minimum 20 m setback maintained for the wetland). No infrastructure is proposed within the setbacks[5], and the graded areas will be stabilized and enhanced as part of a restored / enhanced ecological buffer where maintained golf course turfgrass currently exists.

5.2.2 Buffer Management

A number of buffer management measures are proposed to protect, enhance and mitigate potential impacts to retained natural features:

- Ecological enhancement of the buffer area through a combination of herbaceous seeding and native species plantings. Buffer plantings are designed to protect the edges of retained features and eventually become a functional part of the natural features. It is recommended that the enhancement planting plans are prepared at final design, based on guidance contained within the Plant Selection Guideline, Species List for Planting Plans within the Credit River Watershed (CVC; April 2018) and the Healthy Soils Guideline for the Natural Heritage System (CVC; June 2017).
- In addition, there is an area north of Block 28 that is currently part of the golf course that is not within the Subject Property (i.e., between the Subject Property and the West Credit River / PSW / *Significant Woodland*). It is expected that when construction of the proposed development commences, that maintenance of this area will cease and natural succession will occur, providing additional wildlife

[5] Some rip rap and ESC measures for SWM outlets are proposed within areas proposed to be graded in the buffer, though no additional disturbance is required and no impacts to the natural features are anticipated

habitat and contribute to a further increase in size of the functional area of the retained natural features.

- Restricted access, via permanent fencing.
- 'Sensitive Natural Area' Signage along the north and east sides of the property.

5.2.3 Stewardship

Maintaining natural areas adjacent to residential development provides opportunities for passive recreation but also requires stewardship by the public. Public awareness of the need for such stewardship is important and environmental education is an important tool in achieving this objective.

5.2.3.1 Signage

Signage to identify the presence of a 'sensitive natural area' is recommended at regular intervals along the development / natural area interface on the Subject Property. See **Figure 3**.

5.2.3.2 Homeowner Information Brochure

Provision of an environmental information brochure to homeowners is recommended as an educational tool. The purpose of the brochure is to inform residents about the environmental features bordering their community and how they can be responsible stewards of these natural resources. The overall philosophy of living with nature would be highlighted, incorporating, for example, the following: proper handling of yard waste and composting; control and potential impacts of fertilizers and herbicides / pesticides, de-icing salts, driveway and automotive cleaning residues and disposal of toxic substances in the storm sewer system; protection of soil and vegetation in the natural areas; explanation of the importance of saplings and native ground flora; pet implications and control; control of invasive / exotic plant spread from yards; and identification of opportunities for active monitoring / maintenance (e.g., buffer clean up). It is recommended that the brochure be provided with the purchase documents, and made available at the sales trailer and/or at the County / Town offices. The brochure should be part of the property sale documentation as well, to ensure that the next generation of purchasers are informed about environmental stewardship.

5.3 Best Management Practices

The following measures are recommended to mitigate potential impacts during construction:

- Installation of temporary **Vegetation Protection Fencing** prior to any site grading / vegetation removals to delineate the work zone and prevent direct damage to adjacent retained vegetation (i.e. mechanical damage, root damage, soil compaction). This fencing is to remain until construction is complete.

- **Erosion and Sediment Control (ESC)**.
    - Includes installation of ESC fencing at grading limits (coincident with Vegetation Protection Fencing). Details to be provided as a condition of approval.
    - Erosion and sediment controls will be inspected regularly to ensure protection measures are functioning as intended, maintained and repaired and remedial measures are initiated where warranted.
    - Erosion and sediment control measures will not be removed until the site has been restored and/or stabilized.
- Construction **best management practices** to minimize ecological impacts, including:
    - Refueling and equipment washing to occur at least 30 m from the development limit.
    - Preparation of a Spills Management Plan – to be kept on site.
    - No stockpiling or storage of construction materials or soils within or immediately adjacent to retained natural features and buffer.
- **Construction timing,** in consideration of compliance requirements for the MBCA and ESA (i.e., tree removals will be completed during the bat hibernation period [November 1 to March 15] to ensure that no direct harm to SAR bat individuals potentially using the area occurs [including potential day-roosting bats]).
- The following measures are recommended for the protection of wildlife in general:
    - Install temporary ESC measures prior to any site alteration and maintain throughout construction to prevent wildlife from entering the construction areas.
    - Any wildlife incidentally encountered during construction will not be knowingly harmed and will be allowed to move away on its own. In the event that an animal encountered during construction does not move from the construction zone and construction activities are such that continuing construction in the area would result in harm to the animal, all activities that could potentially harm the animal will cease immediately and the Contract Administrator will be notified.
    - Prior to starting works each day, the construction areas (including staging areas and beneath any equipment parked overnight) should be examined to ensure that no wildlife have entered these areas.
    - In the event that a possible SAR is found in the construction area, all activities that could potentially harm the animal will cease immediately and the Contract Administrator / Site Manager will be notified. The Contract Administrator / Site Manager will then contact the MECP for direction, as these animals are protected under the ESA (2007).

Table 2: Potential Impacts and Proposed Mitigation Measures

Feature Significance and Sensitivity	Natural Environment Impacts	Recommended Mitigation Measures	Residual Effects
Aquatic Resources			
Development Envelope on Subject Properties There are no watercourses within the proposed development envelope. **Lands Adjacent to Development Envelope** **The West Credit River**, a permanent, coldwater watercourse, is located at least 50 m north of the development envelope (generally further). This watercourse provides habitat for warmwater and coldwater species including Brook Trout. Additionally, there is an un-named tributary adjacent to the development envelope (located 30 m away at its closest point)	**Direct Impacts.** None. No in-water works are proposed **Indirect Impacts.** There is potential for indirect impacts to fish habitat on the Subject Property as the result of construction, changes in adjacent land use, potential changes to hydrology and hydrogeology and occupancy-related activities. • **Construction-related Impacts (short-term).** These include erosion and sedimentation and spills of contaminants / fuels. • **Hydrogeology and Hydrology.** Potential for impact to fish habitat on the Subject Property resulting from changes to groundwater and surface water inputs post-construction. • **Dewatering**. Requirements for dewatering management to be confirmed at final design. • **Occupancy-related Impacts.** Some potential, including: informal trail creation reducing the amount of stream shading and cover provided by riparian vegetation; refuse dumping; effects of salt spray from road maintenance or water quality effects related to residential uses (i.e. salt, pesticides).	**Indirect Impacts** to be mitigated by: • **Hydrogeology & Hydrology.** Surface and groundwater inputs to fish habitat and receiving areas (wetlands) will be maintained post-development. • **Surface Water quality (long-term).** Mitigated by: development setbacks and fencing / restricted access (to reduce potential for direct impact / contamination); stewardship; implementation of ESC plan, including fencing installed prior to site grading; implementation of a Spills Response Plan; and SWM strategy (recharge measures, ESC measures, thermal mitigation and maintenance of surface water inputs). • **Development Setbacks.** PSW + 30 m; Significant Woodland + 10 m. These setbacks encompass the West Credit River and its tributary, resulting in the development envelope being a minimum of 50 m from the West Credit River and a minimum of 30 m from the tributary. Grading proposed within these buffers is not expected to impact downgradient aquatic habitat. • **Buffer Management.** The proposed buffer will be managed to: provide a more protective edge to adjacent natural areas; reduce potential to damage to riparian areas; and mitigate occupancy-related impacts (e.g., uncontrolled access). As stated above, the future buffer between the development and fish habitat adjacent to the Subject Property is approximately 50 m at its narrowest point, with most areas much wider. The buffer is comprised of areas to be naturalized as part of the development. • **Permanent Fencing**. Installed between the development and retained natural areas. • Ensure that DFO 'Measures to Avoid Harm to Fish and Fish Habitat' are implemented. Note that these measures should be applied anywhere where surface water has potential to be impacted (i.e. wetlands). • **Stewardship**. An integrated stewardship approach is recommended, including: signage at the development limit; and provision of a stewardship brochure.	No residual negative effects from the proposed development to fish habitat are anticipated, with proper implementation of the recommended mitigation measures. • Short-term impacts to be mitigation through a suite of BMPs and other measures. • Residual long-term effects to hydrogeology and surface water quality in fish habitat on the Subject Property are not anticipated, considering: ○ Surface inputs downstream receiving waterbodies from the Subject Property are negligible under existing conditions and are not expected to substantively change with the recommended SWM approach. ○ Groundwater inputs will be maintained post-development. ○ Potential for erosion in fish habitat / receiving areas will be mitigated via controlled release, infiltration an enhanced / larger buffer to dissipate flows and improve nutrient / sediment filtering.

Feature Significance and Sensitivity	Natural Environment Impacts	Recommended Mitigation Measures	Residual Effects
Vegetation and Flora			
Development Envelope on Subject Property **Vegetation**. The development envelope area of the Subject Property consists of manicured lawn and isolated trees associated within the active golf course operation. **Designated Areas**. None. **Species at Risk and Species of Conservation Concern:** • One (1) potential provincially rare species, Honey Locust (S2?), around the golf courses / around buildings. **Flora significance and sensitivity**: Low. **Lands Adjacent to Development Envelope** **Designated Areas**. West Credit River PSW / Significant Woodlands. **Species at Risk and Species of Conservation Concern:** • 7 SCC, including one SAR: Black Ash (Threatened – COSEWIC; Units 4 and 5). **Vegetation significance and sensitivity**: Vegetation community quality is high (woodland and wetland).	**Direct Impacts** **Vegetation and Flora Removals.** Removal of non-sensitive vegetation - manicured lawn and isolated trees / clusters. **Indirect Impacts** There is potential for indirect impacts to vegetation as the result of construction, changes in adjacent land use, changes to hydrology and occupancy related activities. **Surface Water quality impacts to wetlands (long-term)**. Potential for increased sedimentation / erosion, contamination and salt loading. **Hydrology**. Potential changes to the hydrological regime in the wetland resulting from increases in impervious surfaces and reduction of run-off inputs to the wetland. **Hydrogeology.** Potential impacts to the groundwater regime (decreased recharge/infiltration) and subsequent impacts to wetlands. Potential for contamination of groundwater. **Construction-related Impacts (short-term)**. These include: damage to vegetation outside the work zone; sedimentation; spills of contaminants/ fuels; root pruning; damage to limbs; soil compaction; short term impacts related to dewatering. **Occupancy-related Impacts**. These may include: woodland and wetland edge effects (e.g. invasive species proliferation); trail creation; vandalism; refuse/vegetation dumping; water quality effects related to residential uses (i.e. salt, pesticides).	**Direct Impacts** to be mitigated by: Buffer enhancements to compensate for minor removals. Installing temporary **Vegetation Protection Fencing** prior to any site grading to delineate the work zone and prevent direct damage to adjacent retained vegetation (i.e., mechanical damage, root damage, soil compaction). This fencing will remain until construction is complete. **Indirect Impacts** to be mitigated by: • Implementation of during-construction Best Management Practices (BMPs) as identified above (e.g., ESC, Spills Management…) • **Maintenance of surface and groundwater inputs** to receiving areas in the West Credit River PSW. As above. • Measures to **mitigate potential impacts to surface and groundwater quality.** As above. • **Development Setbacks & Buffer Management.** As above. • **Permanent Fencing.** As above. • **Erosion & Sediment Control (ESC) Plan**. • **Stewardship.** As above. **Tree Management Plan**. Vegetation management review will continue through the planning process in consultation with the Town of Erin. Trees / vegetation identified for retention in the arborist report will be protected to ensure that they provide a long-term viable amenity to the residents. If there are trees that cannot be retained in order to accommodate grading or other needs to facilitate the development, appropriate compensation will be proposed. **Monitoring**. See Section 5.3; includes vegetation plot monitoring.	Residual impacts to vegetation in the West Credit River PSW / *Significant Woodland* are not anticipated, with proper implementation of recommended mitigation and protection measures. Wetland and woodlands will be retained in full and protected with development setbacks and an enhanced buffer. Recommended setbacks will provide good dripline and root zone protection (well beyond the current state). These setbacks, coupled with buffer zone management measures, will help to maintain or improve edge integrity by establishing a thicker, more diverse edge zone. Buffer zone management, via native species plantings / seeding to address: vegetation community and botanical diversity; and woodland edge protection. Given development in the landscape and historic / recent land use on the Subject Property, some increase in exotic species is likely. The intent is to reduce to the extent possible. Permanent fencing and stewardship measures will help to reduce secondary effects on forest / wetland integrity following development and occupancy. Residual long-term effects to hydrogeology and surface water quality in the PSW are not anticipated, considering: • There will be no direct disturbance to the PSW. • Hydrogeological inputs will be maintained. • Enhanced buffer for nutrient filtering and shading. • Long-term impacts to groundwater quality are not anticipated, with implementation of proposed infiltration strategies Residual impacts from construction are not anticipated, with implementation of recommended vegetation protection fencing, ESC fencing and spills management plan.

Feature Significance and Sensitivity	Natural Environment Impacts	Recommended Mitigation Measures	Residual Effects
Wildlife			
Development Envelope on Subject Property **Habitat**. Development envelope consists of manicured lawn and isolated trees associated with the active golf course operation. Provides limited foraging and movement opportunity for common, disturbance-tolerant wildlife. **Species at Risk and Species of Conservation Concern**: Barn Swallow observed during the breeding season flying over the Subject Property; no evidence of nesting was observed. **Significance and sensitivity**: Low. Common, tolerant, anthropogenic habitats. No confirmed Significant Wildlife Habitat. **Lands Adjacent to Development Envelope** **Habitat**. Upland deciduous forest and riparian wetland habitat mosaic, which collectively provides habitat for area-sensitive bird species, amphibian breeding / dispersal habitat and potentially turtle overwintering / dispersal habitat. **Species at Risk and of Conservation Concern**: The deciduous forest and PSW communities provide breeding habitat for a number of regionally significant and area-sensitive bird species (Section 2.5.3) and potential SAR bat roosting habitat. Herpetofauna breeding, foraging and potential overwintering habitat is present within the West Credit River valley. Candidate SWH is present. **Significance and sensitivity**: High. Part of a larger contiguous riparian wetland and upland forest habitat mosaic with sensitive and specialized habitat types (e.g., riparian / aquatic, wetlands suitable for amphibian breeding, deer winter areas, bat maternity roost habitat, refer to SWH assessment in Section 4.2.2).	Potential impacts on wildlife habitat are similar to those discussed for vegetation (i.e., minimal direct / indirect impacts to edge habitats, temporary construction-related disturbance effects etc.). Some additional occupancy-related effects are specific to wildlife (e.g. pet predation, influence of increased pedestrian activity / building proximity to wildlife habitats). **Direct impacts.** **Habitat removals.** Loss of wildlife habitat is restricted to anthropogenically influenced habitats (manicured golf course), which is non-sensitive and provides no specialized wildlife habitat. **Movement opportunities**. While the West Credit River valley is a known wildlife movement corridor (which will be retained and enhanced post-construction), there are no defined wildlife movement areas through the development envelope and the lack of natural vegetation cover act as barriers for more sensitive species. Moreover, the presence of major roads and urban development to the west and south greatly restrict potential for movement across the Subject Property. **Indirect Impacts.** There is potential for indirect impacts to wildlife habitats on adjacent lands as a result of construction, changes to hydrology and occupancy related activities. **Construction-related impacts.** These are generally limited to temporary disturbances during construction. Potential for sedimentation and contamination are addressed by ESC / temporary wildlife exclusion controls and SWM measures. **Surface Water quality impacts to wetland habitats (long-term)**. Potential for reduced surface water quality with salt loading. **Hydrology**. As above, retained off-site habitats may be impacted by changes to hydrological inputs. This is particularly important for the wetlands. **Occupancy-related impacts**. These may include: pet predation; invasive species; increased pedestrian access / disturbance in natural areas (i.e., on or off-trail hiking), and increased noise / light disturbance.	Retention and protection of vegetation resources in adjacent natural areas (as discussed above) will also protect wildlife habitat. Specific mitigation measures are as follows: **Habitat for wildlife species of concern / SWH.** Habitat for woodland species (including area-sensitive bird and potential SAR bat habitat), as well as wetland habitat will be retained in full, with setbacks and buffer enhancements. Additional measures are proposed to protect wildlife habitat and mitigate impacts to individuals, including: ESC measures; maintenance of hydrological inputs; restricted access; and stewardship initiatives (e.g., signage). **Wildlife Movement**. Local wildlife movement opportunities within the West Credit River valley to the north will be maintained and enhanced. **Lighting.** Strategies to minimize light pollution and 'spillage' of light into the natural areas will be considered (i.e., through selection of bird and bat-friendly lighting technologies and minimizing lighting adjacent to buffers / natural areas). **Indirect Impacts** to be mitigated by: • **Surface Water inputs / quality (long-term).** As above • **Groundwater inputs / quality (long-term).** As above. • **Permanent Fencing/barrier.** As above. • **Buffer Management.** As above • **Erosion & Sediment Control (ESC) Plan**. As above. • **Stewardship.** As above. **Occupancy-related impacts**. Occupancy related impacts to wildlife and wildlife habitat will be mitigated by a combination of measures: permanent fencing along development limits to restrict access and direct wildlife away from the development, and stewardship initiatives (signage). The intent is to restrict human access to sensitive natural areas, direct wildlife away from the developed area, and to inform local residents / occupants about the sensitivity of adjacent natural areas. **Monitoring**. See Section 7; includes breeding bird monitoring and spring amphibian breeding.	Residual impacts to wildlife and wildlife habitat resulting from development on the Subject Property are not anticipated. Direct impacts will be limited to anthropogenically influenced, non-sensitive habitat that currently supports only common, disturbance-tolerant wildlife species. Potential for indirect impacts on adjacent natural areas will be mitigated by: • Standard ESC, SWM treatment of contaminants, maintenance of hydrological inputs to dependent features, buffering of sensitive areas. • Stewardship measures to raise awareness of the sensitivity of adjacent natural areas and further reduce potential for indirect (occupancy-related) impacts. • Improved natural area buffering and wildlife habitat enhancements. In any populated area there is potential for unauthorized intrusion and damage to natural areas, and less tangible but inferred effects of occupancy on breeding bird and other wildlife activity. Population changes in breeding birds and amphibians are inevitably related to the approved transformation of the broader landscape in the Region. Changes can also be caused by factors outside the Region (such as alteration/loss of wintering habitat, severe climatic conditions during migration activity, and changes in migratory stopover habitat). Hence, it must be recognized that shifts in wildlife species composition may be inevitable in this area over time, and in fact have probably already occurred with changes in the regional landscape.

5.4 BIOLOGICAL MONITORING

5.4.1 Overview and Objectives

In addition to typical during-construction monitoring (e.g., ESC / vegetation protection fencing inspections), a Biological Monitoring Program is recommended to identify issues of concern and propose strategies to address problems in a timely manner. Monitoring will focus on the West Credit River valleyland adjacent to the Subject Property[6].

The Biological Monitoring Program described herein is preliminary; it is expected that the program will be finalized as a condition of approval, including monitoring locations, methodology and other details.

5.4.2 Program Details

Monitoring is proposed in three stages: Pre-Construction (1 year); During-Construction; and Post-Construction. It is recommended that monitoring extends from one-year pre-construction to two years following complete build out and occupancy / operation. Monitoring is the responsibility of the proponent.

Proposed biological monitoring includes the following components:

- **Vegetation**
    - General Overview. This will include comments on: vegetation condition / vigour; presence of damaged, diseased, or hazard trees requiring attention; proliferation of invasive species; areas of trampled or cut vegetation, rubbish / garden waste disposal; sediment deposition; evidence of any erosion problems; and informal trail development. Remedial work should be undertaken as required based on monitoring results and recommendations.
    - Vegetation Plot Monitoring. Permanent monitoring plots will be established in upland and wetland vegetation communities to assess changes in vegetation community resulting from development-related impacts. The approach includes fixed point photo-monitoring, a quantitative and qualitative floristic assessment within plots and general comments on vegetation within the vicinity of the plot.
    - Buffer Areas. Monitoring to assess integrity and functioning of buffers via general condition and health of buffer vegetation and retained edge vegetation

[6] Pending confirmation of permission to enter from the landowner

- **Breeding Bird Survey**

    - An annual breeding bird survey will be undertaken at consistent monitoring stations, per Ontario Breeding Bird Atlas [OBBA] protocols (Bird Studies Canada 2003). Monitoring will record species presence, abundance and level of breeding evidence

- **Spring Amphibian Breeding Survey**

    - Annual spring amphibian breeding (calling) surveys will be completed at consistent monitoring stations on the Subject Property (exact locations to be determined) targeting wetland habitat immediately adjacent to the Subject Property. Surveys to be completed per Marsh Monitoring Program [MMP] protocols (Bird Studies Canada 2008).

Reporting

Results of biological monitoring will be summarized in annuals reports submitted to CVC, the Town and the County. Biological monitoring will consider results of other monitoring, as available (e.g., hydrogeological) and include conclusions and recommendations for remedial measures, where required.

6.0 CONCLUSIONS & RECOMMENDATIONS

6.1 Conclusions

Based on the review discussed herein, we conclude that proposed development can be undertaken while protecting environmental features and their functions, subject to the implementation of the recommended mitigation measures. This conclusion reflects the following considerations:

- **Natural Area Protection and Enhancement**. The recommended development setbacks ensure there will be no intrusion into the *Significant Woodland*, PSW or watercourses adjacent to the Subject Property. Although some grading is required within the recommended setbacks, these natural areas will be retained in full and their ecological functions will be protected with enhanced buffers, permanent fencing, 'sensitive areas' signage and provision of a stewardship brochure to homeowners. Protection of these areas will also result in the protection of suitable habitat for *Species at Risk* as well as *Candidate* and *Confirmed Significant Wildlife Habitat*.

- **Stormwater Management**. The proposed SWM strategy has been developed to provide quantity, quality and erosion control via the two proposed SWM facilities in accordance with applicable guidelines and standards and will facilitate the maintenance of the site wide water balance to at least 80% and feature-based water balance will exceed pre-development recharge.

- **Water Balance**. With the implementation of recommended mitigation measures and based on recommendations and conclusions in the Hydrogeological Assessment (Terra-Dynamics; 2022), adverse impacts to the hydrology of adjacent natural features are not anticipated as a result of the proposed development. Further analysis regarding the site water balance and inputs to these features will occur during detailed design, in order to refine recommendations and conclusions identified herein and in the Hydrogeological Assessment (Terra-Dynamics; 2022).

6.2 Recommendations

To ensure that environmental protection and mitigation is properly managed during site development, the following recommendations / actions are identified, to be finalized as conditions of approval:

- **Permanent fence installation** is recommended at the development – natural area interface with adjacent natural areas, as shown on **Figure 3**.

- **Enhancement plantings**. A combination of natural succession with nodal native species plantings is proposed in buffer zones as shown on **Figure 3**. These plantings will add habitat diversity, increase the size of the natural features, increase the effectiveness of the buffer, reduce the potential for erosion adjacent to natural features and provide an overall net enhancement to the adjacent natural features. The enhancement plantings should be prepared using guidance contained within the Plant Selection Guideline, Species List for Planting Plans within the Credit River Watershed (CVC; April 2018) and the Healthy Soils Guideline for the Natural Heritage System (CVC; June 2017).

- **Environmental Stewardship**. Two measures are recommended: 1) 'Sensitive Area' signage, installed at regular intervals along the development limit / natural area interface; and 2) provision of an environmental stewardship information brochure to homeowners.

6.3 Future Work

The following additional work is recommended to confirm or refine conclusions and recommendations herein:

- Finalize the SWM strategy, including details regarding outlet location and design.
- Verify that groundwater flows beneath the Subject Property will not be interrupted by the proposed development, implement mitigation measures if required during detailed design.
- Finalize the biological monitoring program, confirming locations and numbers of plots / stations.
- Prepare detailed enhancement planting plans.

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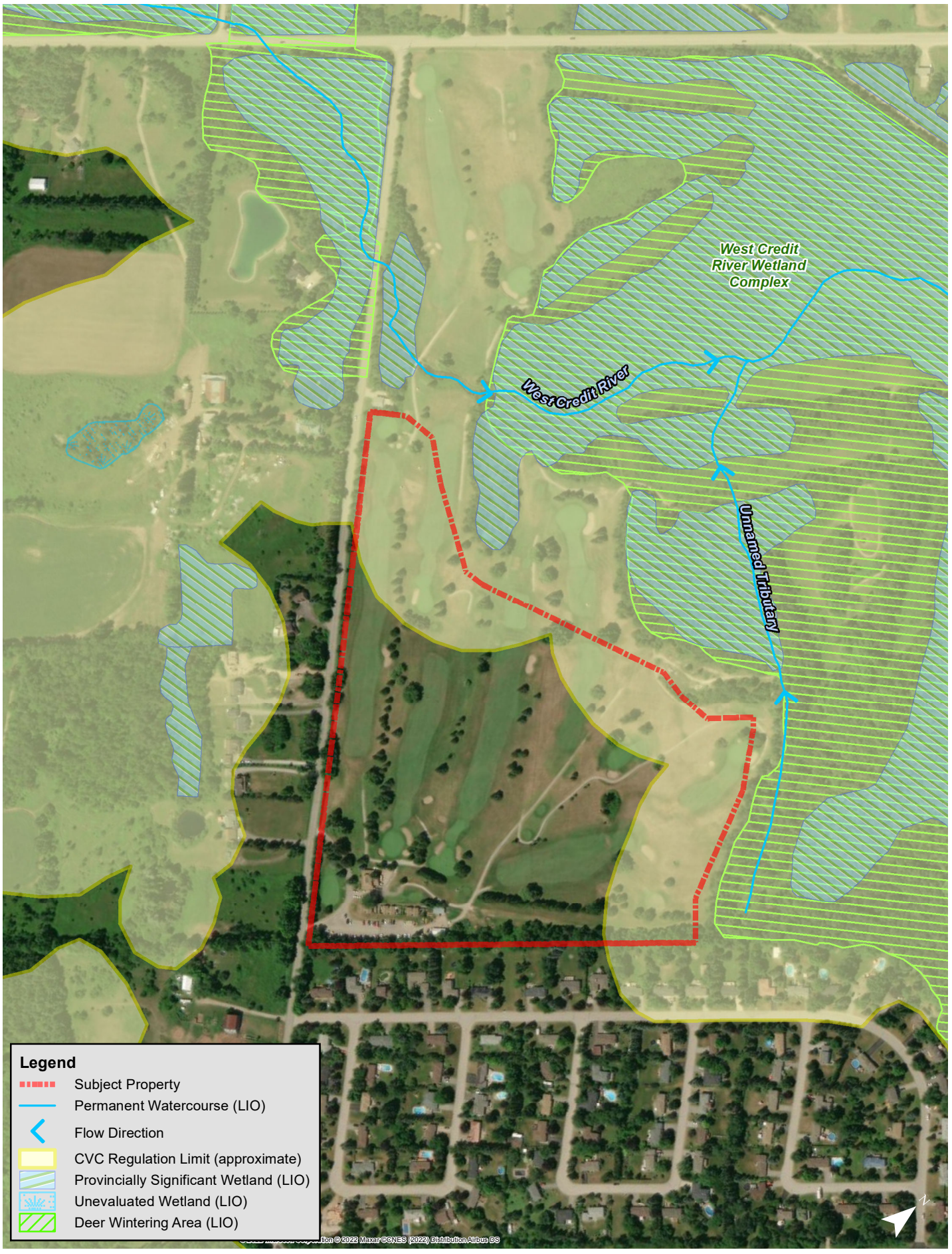

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Erin Fairways Subdivision | Scoped Environmental Impact Study
Natural Heritage Designations

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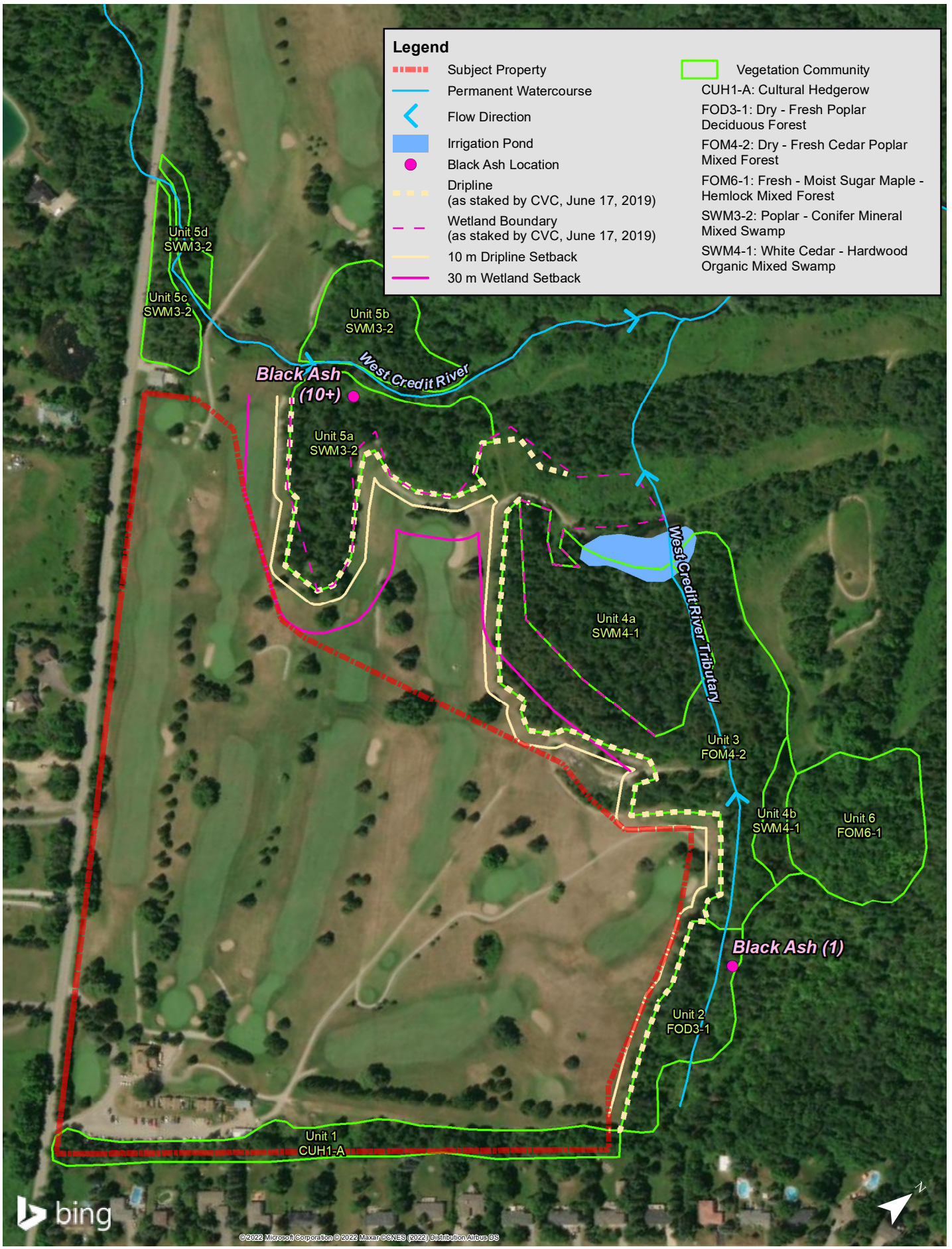
Metres
1:5,000

Date: May 2022
Project No: 211-04586-00
Figure No: 1



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Erin Fairways Subdivision | Scoped Environmental Impact Study
Ecological Land Classification and Feature Limits

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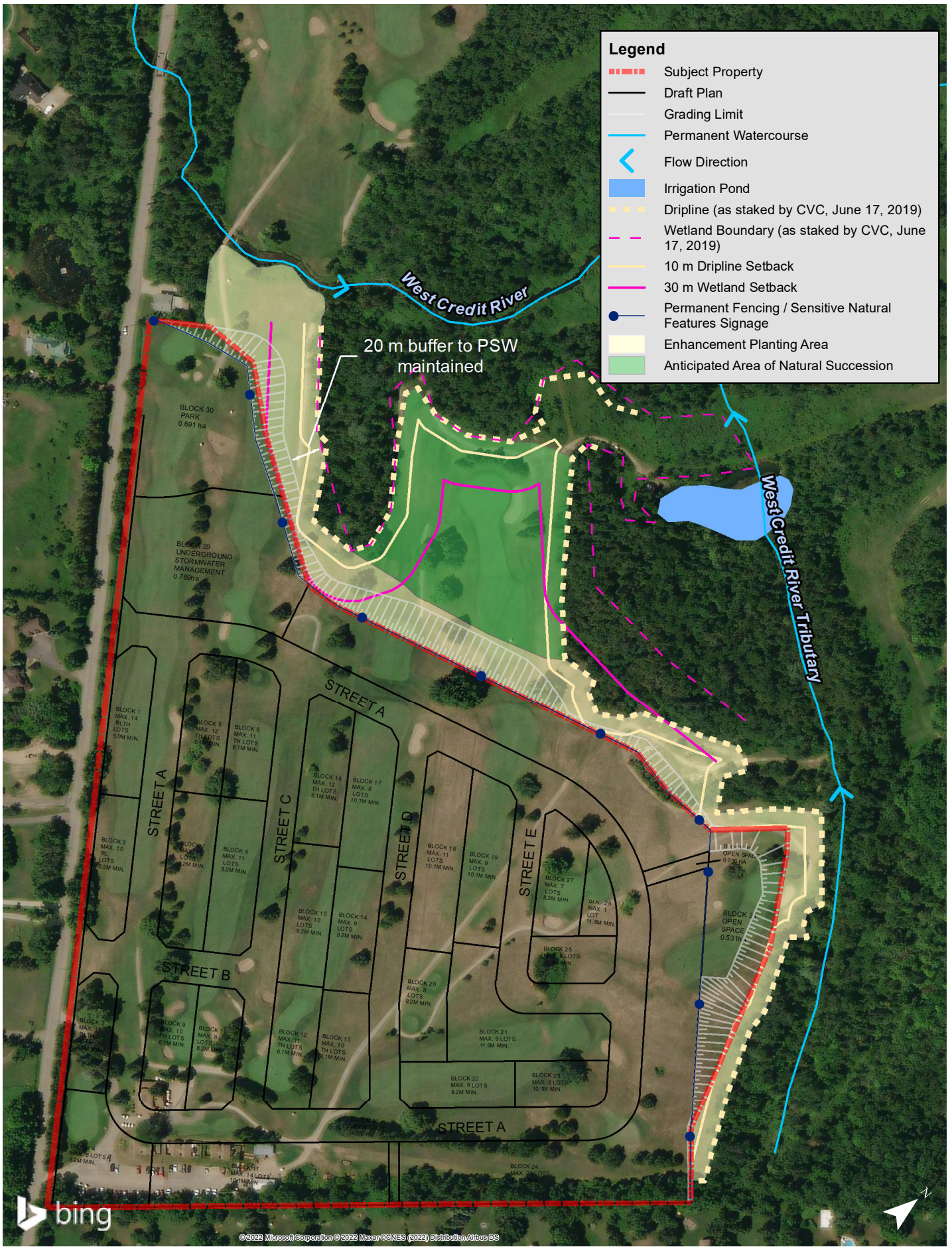
Metres
1:3,500

Date: May 2022
Project No: 211-04586-00
Figure No: 2



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Erin Fairways Subdivision | Scoped Environmental Impact Study
Draft Plan and Environmental Management Recommendations

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Metres
1:3,000

Date: May 2022
Project No: 211-04586-00
Figure No: 3

APPENDIX A

Field Survey Chronology

Appendix A – Field Survey Chronology

Date	Surveyor	Person Hours	Task	Weather Conditions[1]
2021				
May 4, 2021	LW	2.5	Site reconnaissance and early botanical inventory	**Temp:** Start: 15°C, End: 15°C; **Precipitation:** Light rain
June 11, 2021	SL	2.5	Breeding Bird – Round 1; General Wildlife Habitat Assessment	**Temp:** Start: 17°C, End: 20°C; **Sky Code:** Start: 1, End: 0; **WS:** Start: 1, End: 1; **Precipitation:** No
June 25, 2021	SL	2.5	Breeding Bird Survey – Round 2; General Wildlife Habitat Assessment	**Temp:** Start: 20°C, End: 20°C; **Sky Code:** Start: 2, End: 2; **WS:** Start: 1, End: 1; **Precipitation:** No
August 24, 2021	LW	8	Ecological Land Classification and botanical inventory; General Wildlife Habitat Assessment	**Temp:** Start: 20°C, End: 31°C; **Sky Code:** Start: 0, End: 0; **WS:** Start: 1, End: 1; **Precipitation:** No
November 17, 2021	LW	2.5	Site walk with peer reviewer; project team and agency staff	N/A

[1] **Beaufort Wind Scale**
0 = calm, smoke rises vertically (0-2km / hr)
1 = Light air movement, smoke drifts (3-5)
2 = Slight breeze, wind felt on face; leaves rustle (6-11)
3= Gentle breeze, leaves & twigs in constant motion (12-19)
4= Moderate breeze, small branches moving, raises dust & loose paper (20-30);
5= Fresh breeze, small trees begin to sway (31-39)
6= Strong breeze, large branches in motion (40-50)

[2] **Sky Code**
0 = clear (no cloud cover)
1 = partly cloudy (scattered or broken) or variable
2 = cloudy or overcast
3 = Sandstorm, duststorm or blowing snow
4 = fog, smoke, thick dust or haze
5 = drizzle or light rain
6 = rain
7 = snow or snow / rain mix showers
8 = showers
9 = thunderstorms

APPENDIX B

Terms of Reference and Agency Comments

EMPIRE COMMUNITIES LTD.

ERIN HEIGHTS GOLF COURSE, ERIN, ONTARIO

SCOPED ENVIRONMENTAL IMPACT STUDY

TERMS OF REFERNCE

October 2021

1.0 INTRODUCTION & CONTEXT

WSP Canada Inc. (WSP) has been retained by Empire Communities Ltd. to complete a Scoped Environmental Impact Study (EIS) in support of applications for a Draft Plan of Subdivision and Zoning By-law Amendment for the Subject Property at 5525 Eighth Line in Erin, Ontario, referred to as the Erin Heights Golf Course (the Project). The Subject Property is an approximately 14 ha parcel of land, located on the northeast side of Eighth Line, immediately northwest of Erin Heights Drive in Erin, Ontario.

These Terms of Reference (TOR) provide background information on the Subject Property (and surrounding study area) and outline the steps required to complete the Scoped EIS in consideration of a Draft Plan of Subdivision Application / Zoning By-law Amendment to the Town of Erin / Wellington County. These TOR consider input from the Pre-consultation Meeting Response & Development Application Submission Requirements for 5525 Eighth Line, Town of Erin, dated August 25, 2021.

2.0 EXISTING CONDITIONS OVERVIEW

2.1 SITE CONTEXT & DESIGNATIONS

The Subject Property consists of an active golf course (Erin Heights Golf Course). The Subject Property is bounded by agricultural lands and natural features to the west and south, residential areas to the southeast, and natural areas to the north and northeast. Adjacent natural areas include the Credit River (Erin Branch) and associated tributaries (including wetland and riparian habitat) and forest to the north and northeast and the *West Credit River Provincially Significant Wetland* (PSW) complex, primarily located to the north and northeast, with some isolated pockets on the southwest side of Eighth Line. The PSW wetland, as well as the Credit River (Erin Branch) (and associated tributaries and riparian habitat) are designated as *Core Greenlands* in the Town of Erin Official Plan (2012). The Subject Property is designated as *Residential* on Schedule A-2.

Due to the adjacent natural features (watercourse and PSW), much of the area surrounding the Subject Property is regulated by Credit Valley Conservation (CVC) under Ontario Regulation 160/06, with this regulated area extending onto the northern portion of the Subject Property. These designations are shown on the figures in Attachment A.

2.2 NATURAL HERITAGE OVERVIEW

2.2.1 Natural Heritage Attributes

Based on review of background information and field surveys undertaken by WSP in spring-summer 2021, the following natural heritage attributes are present in the vicinity of the Subject Property:

- **Aquatic Habitat**. There is one permanent watercourse located immediately adjacent to the Subject Property; the Credit River (Erin Branch), located northwest / north of the Subject Property. There is also a small, intermittent / ephemeral, unnamed tributary located northeast of the Subject Property that conveys flows from southeast to northwest into the Credit River (Erin Branch). The Credit River (Erin Branch) is a coldwater watercourse, known to support Brook Trout (*Salvelinus fontinalis*) populations and other aquatic species.
- **Species At Risk (SAR) and Species of Conservation Concern (SCC)**. Features on and adjacent to the property provide potentially suitable habitat for SAR and SCC. No aquatic SAR are known to occur on or adjacent to the property (DFO SAR Mapping, 2021[1]). There is potentially suitable habitat for SAR/SCC birds, turtles, snakes and mammals, primarily associated with the PSW and forest habitat adjacent to the Subject Property.
- **Vegetation**. The natural features adjacent to the Subject Property support upland forest and swamp wetland habitats. The forested habitat surrounding the Subject Property is part of a large contiguous habitat block associated with the Credit River and its tributaries.
- **Wildlife Habitat**. Features on the Subject Property provide potential breeding / foraging habitat for some generalist wildlife species, but natural vegetation is limited. Habitat for woodland and wetland-associated avifauna, herpetofauna and mammals is present in the forest and wetland habitat adjacent to the Subject Property. The Credit River (Erin Branch) provides wildlife movement opportunities as part of the broader Credit River valley system / natural habitat mosaic. However, there is limited potential for wildlife movement across the Subject Property, given the anthropogenic land use / limited natural cover and lands uses / land of natural cover west of Eighth Line (residential / agricultural) and south (residential). Higher quality movement areas are associated with larger, contiguous natural habitat blocks north and south of the Subject Property.

3.0 EIS SCOPE OF WORK

The Scoped EIS will address objectives and requirements / guidance of the Town of Erin Official Plan (2012), the Wellington County Official Plan (2021) and CVC guidelines, considering natural features on and adjacent to the Subject Property.

A Conceptual Subdivision Plan (included in Attachment A), shows the accepted development limits. The Subject Property was subject to a severance, completed by the previous owners. At the time of severance, CVC staffed staked and verified the natural feature limits (dripline and wetland) in the vicinity of the Subject Property on June 17, 2019 and associated setbacks (woodland + 10 m, wetland + 30 m) were added to the survey plan and approved by CVC at the time of the severance application. The Subject Property development

[1] https://www.dfo-mpo.gc.ca/species-especes/sara-lep/map-carte/index-eng.html

limit is located outside of the staked features and their associated setbacks. We understand that this was communicated to the previous owner from CVC during the pre-consultation meeting on August 17, 2021.

The following summarizes the tasks completed to date and proposed outstanding tasks:

1. **Preliminary Vegetation and Wildlife Assessment**. Site visit to assess the potential for any sensitive vegetation or wildlife habitats to be present on / immediately adjacent to the Subject Property.
    - Completed on May 4, 2021.
2. **Botanical inventory and Ecological Land Classification**. Field survey on and adjacent to the Subject Property, with vegetation communities classified using the Ecological Land Classification for Southern Ontario, ELC (Lee et al. 1998).
    - Completed on August 24, 2021.
3. **Breeding Bird Surveys**. Two rounds of survey on and adjacent to the Subject Property using standard protocols established in the Ontario Breeding Bird Atlas (Bird Studies Canada, 2001).
    - Completed on June 11 and June 25, 2021.
4. **Species at Risk (SAR) habitat and Significant Wildlife Habitat (SWH) Assessment.** Completed during all field surveys; results, analysis and commentary to be documented in the EIS report.
5. **Impact Assessment and Recommendations for Mitigation / Enhancement.** In accordance with relevant policies in the Town of Erin Official Plan (2012), Wellington County Official Plan (2021) and other relevant policies / guidelines, development design alternatives that would avoid detrimental impacts will be considered. If it is determined that impacts cannot be avoided, an assessment of the potential impacts on natural features and ecological functions will be completed and will include appropriate mitigation strategies for the protection, restoration and enhancement of natural features in future development scenarios, as required. These mitigation strategies will include the following:
    - Recommendations for buffer treatment (e.g., buffer planting plan), including potential for transitional grading, where appropriate;
    - Erosion and sediment control (ESC) measures;
    - Construction best management practices to minimize ecological impacts (e.g., refueling, equipment washing, stockpiling / storage etc.);
    - Construction timing, in consideration of compliance requirements for the Migratory Birds Convention Act (MBCA); and
    - Buffer enhancement measures.

6. **Scoped EIS Report Preparation.** A Scoped EIS Report will be prepared in accordance with relevant official plan and CVC policies / guidelines and will include the following:
    - Characterization of the existing natural features on and adjacent to the Subject Property, including presentation of survey results by vegetation community or survey area;
    - Relevant natural heritage policy discussion;
    - Analysis of opportunities and constraints, including input to the siting / design of any required stormwater outlets to the adjacent natural areas;
    - Details of the proposed development;
    - Integration of relevant information from available technical studies and plans (i.e., Stormwater Management, Hydrogeology, Grading Plans, ESC Plans);
    - Impact analysis of the proposed land use change to these features; and
    - Recommendations for mitigation, enhancement and monitoring.

The report will also include technical appendices, such as species lists, photographs, etc. Mapping of natural features as identified, and recommended buffers will be provided on an air photo base at an appropriate scale. A draft report will be submitted to the Town of Erin, Wellington County and CVC for review and comment, then finalized based on comments received.

Signatures

Prepared by

October 1, 2021

Steven Leslie, B.E.S.,
Ecologist

Date

Reviewed by

October 1, 2021

Jeff Gross, MSc.,
Project Manager / Senior Ecologist

Date

WSP Canada Inc. prepared this report solely for the use of the intended recipient, **Empire Communities Ltd.**, in accordance with the professional services agreement. The intended recipient is solely responsible for the disclosure of any information contained in this report. The content and opinions contained in the present report are based on the observations and/or information available to **WSP Canada Inc.** at the time of preparation. If a third party makes use of, relies on, or makes decisions in accordance with this report, said third party is solely responsible for such use, reliance or decisions. **WSP Canada Inc.** does not accept responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken by said third party based on this report. This limitations statement is considered an integral part of this report.

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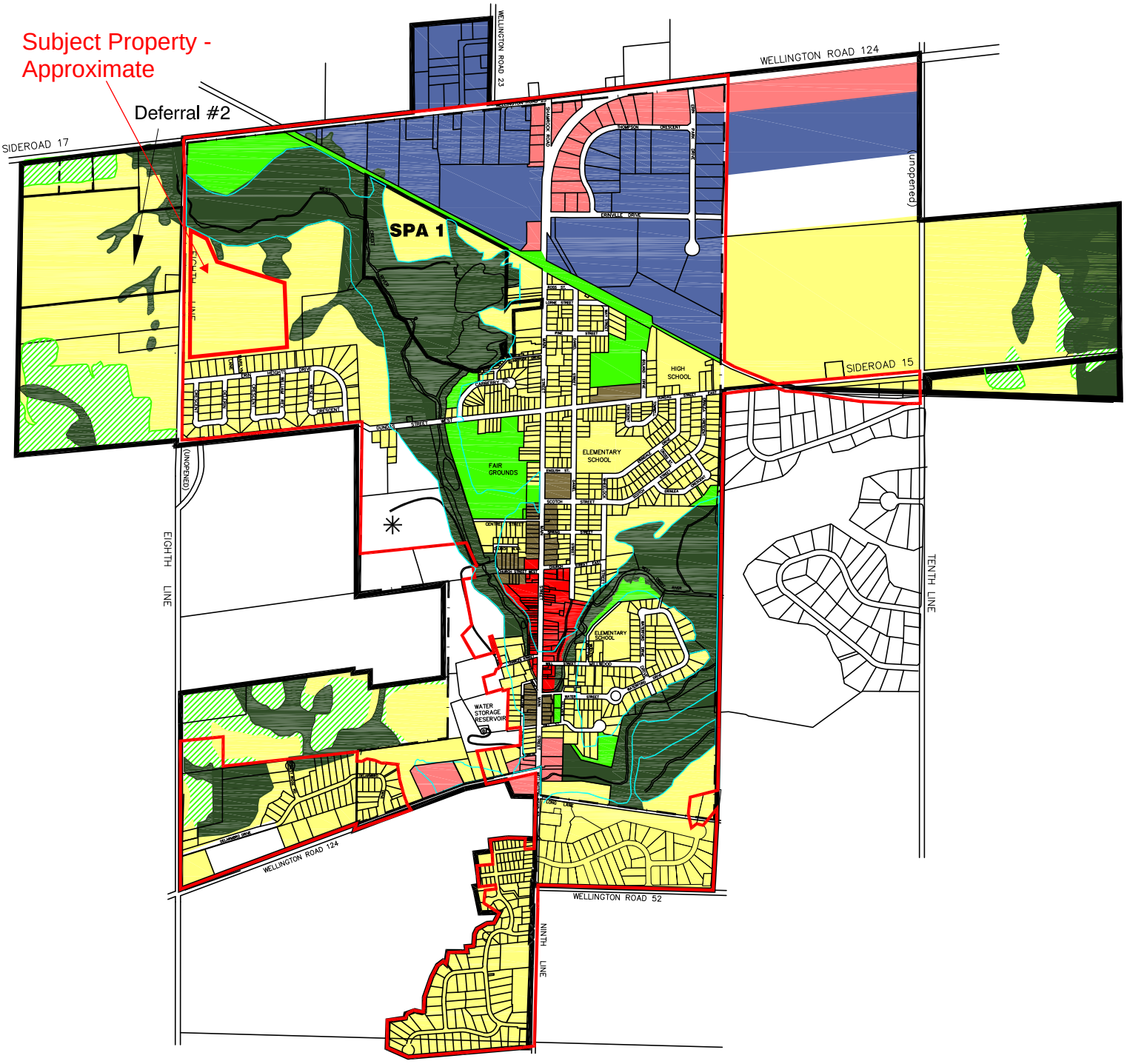
ATTACHMENT A

Figures

Schedule A-2

MODIFIED SCHEDULE A-2



Legend:

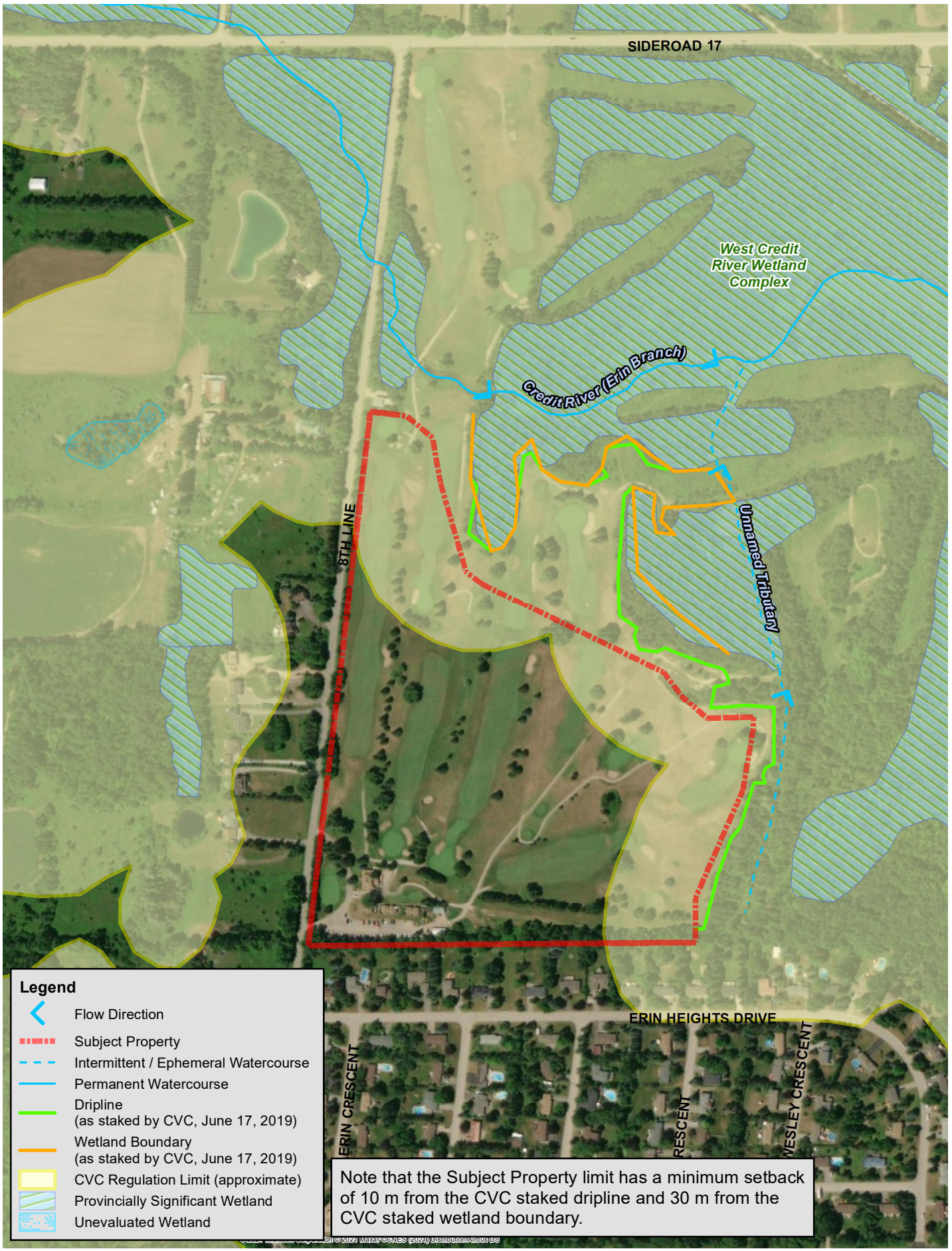
- Residential
- Central Business District
- Highway Commercial
- Residential Transition Area
- Industrial
- Core Greenlands
- Greenlands
- Recreational
- Community Improvement Area
- SPA - Special Policy Areas
- Regulatory Floodline
- Future Development
- Former Landfill Site
- Built Boundary

Erin
Urban Area
Town of Erin
Schedule A-2

Scale:

0 100 300 700 metres

Updated: February 27, 2012.



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ERIN HEIGHTS GOLF COURSE
Natural Heritage Overview

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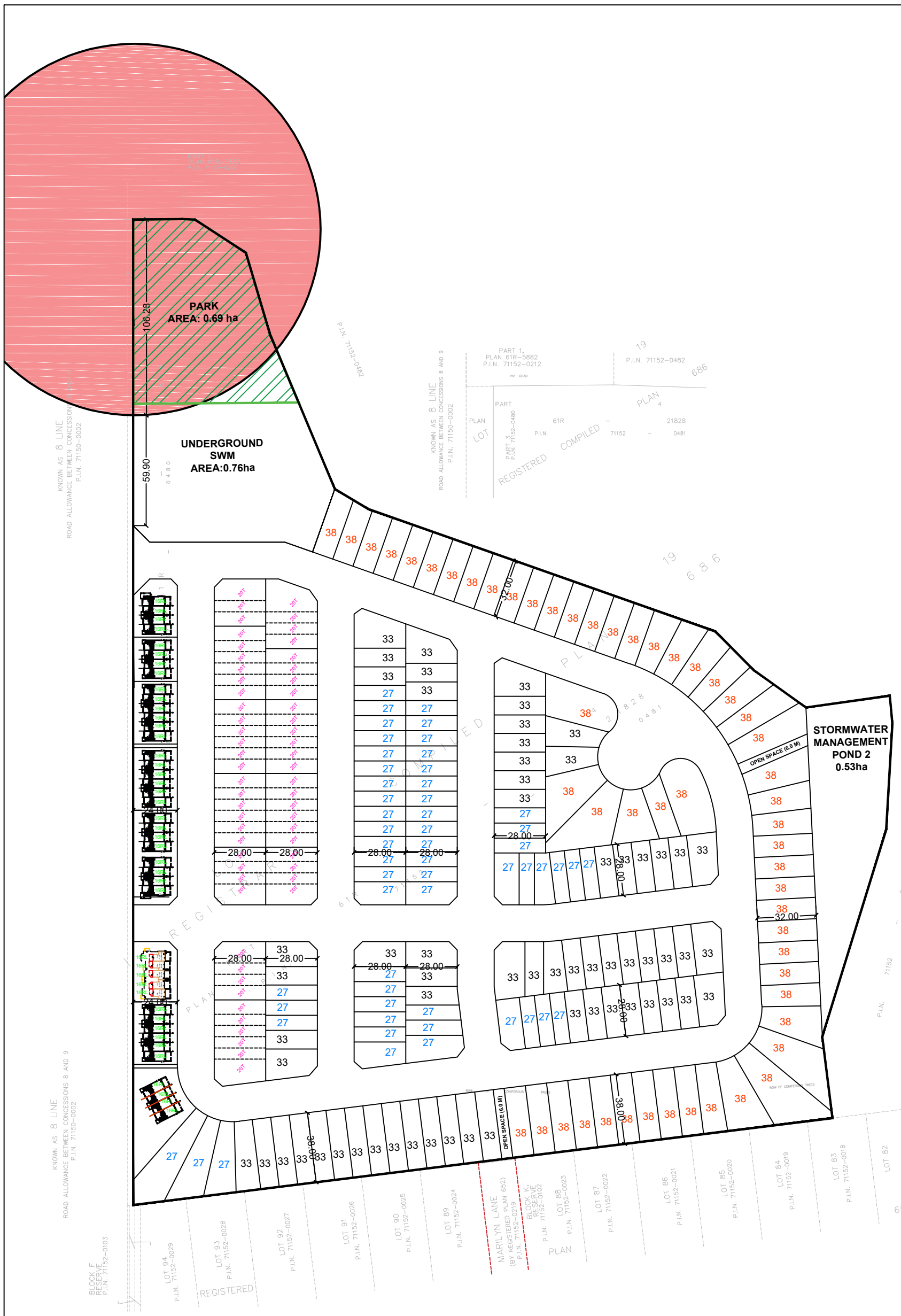
Date: October 2021
Project No: 211-04586-00
Figure No: 1



Erin Concept Plan

Wellhead Protection Area (A)
Vulnerability Score: 10

Parkland - Area: 0.69 ha
(5% of Total Area of the Site)

Source: Welling ton County Source Water Protection Map (Online Map accessed August 23, 2021), Armstrong Planning & Project Management

Date:
Sep 9, 2021

armstrong
planning | project management

ATTACHMENT B

Pre-Submission Comments

TOWN OF ERIN

5684 Trafalgar Rd.
Hillsburgh, ON N0B 1Z0
www.erin.ca

Telephone: (519) 855-4407
Fax: (519) 855-4281
Toll Free: 1-877-818-2888

August 25, 2021

SENT BY E-MAIL

Carleigh Oude-Reimerink
Armstrong Planning & Project Management
1600 Steeles Ave West, Suite 318
Vaughan ON L4K 4M2

Dear Carleigh Oude-Reimerink,

RE: Pre-consultation Meeting Response & Development Application Submission Requirements for **5525 Eighth Line, Town of Erin**

Further to the pre-consultation meeting held on August 17, 2021, the following comments relate to the Concept Plans and information submitted for the proposed development of 5525 Eighth Line. Below please find a summary of comments provided by Town Staff and commenting agencies as well as a document submission checklist that will assist you in preparing a ***complete*** application submission.

Owner:	EC (Erin) GP Inc. (Jeffery Swartz)
Applicant:	Armstrong Planning & Project Management c/o Carleigh Oude-Reimerink
Pre-Consultation Date:	August 17, 2021
Subject Property Address:	5525 Eighth Line
Proposed Use:	Residential Subdivision
Application Type(s):	Draft Plan of Subdivision Application Zoning By-law Amendment Application

COMMENT SUMMARY

Applicant & Agent – Jeffery Swartz & Carleigh Oude-Reimerink

- Have been in discussions with the applicant (Mattamy) across the street (Langen property)
- Proposing 245 SDEs (townhouses and single detached); maximum 250 SDEs allocated as per agreement with Town
- 2 accesses onto Eighth Line (one to the north and one further south)
- The front yard of the townhomes will face Eighth Line, with driveway access internal to the site
- Proposing two SWM facilities, one underground with park area on surface

- Combining SWM facility and park will allow for proposed density, otherwise, would be well under 250 SDEs
- Acknowledge the SWM issues with this site

Town Planning - Angela Sciberras, MSH and **Tanjot Bal, Town Planner**
(Tanjot.bal@erin.ca or 519-588-4407 ext. 242

- Subject property is designated Residential and Core Greenlands within the Erin Urban Centre. A variety of housing types are permitted within the Residential designation.
- All applicable policies must be covered within the Planning Justification Report.
- Erin's OP encourages intensification within urban centres (S. 3.5.5):
    - Supporting increased densities in newly developing greenfield areas with a broader mix of housing types once municipal sewer service is available
- The Official Plan has the following objectives for residential development:
    - Provide a variety of dwelling types and ensure that affordable housing is available
    - Preserve and protect the small town character of Erin (demonstrated through the submission of an Urban Design Brief that ensures conformity with the Town's UDGs).
        - Must preserve the integrity of the character of the development to the south, through fencing, tree covering, etc.
    - Ensure adequate levels of municipal services will be available (site is allocated 250 SDEs)
    - Encourage residential developments to incorporate innovative and appropriate design principles to contribute to public safety, affordability, energy conservation and that protect, enhance and properly manage the natural environment
    - Encourage a high standard of community design consistent with Section 3.13
- Medium density development (i.e. Townhouses) must be compatible with existing or future development on adjacent properties. The proposal includes townhouses along Eighth Line.
- Applicant is encouraged to contact the developer across the street, to ensure the development is compatible with their proposal (i.e. ensure proposed roads align, coordination of servicing, parks).
- Applicant to review Section 4.7.5 of the OP (i.e. screen outdoor amenity areas, adequate parking, adequate grading).
- Plans of Subdivisions must satisfy Section 5.15.1 of the Official Plan:
    - Conform to the objectives, General Policies of Section 3 and land uses designations of this plan & County OP
    - Provide the necessary services, utilities and community facilities
    - Must demonstrate that it will not negatively affect transportation networks, abutting land uses and other features
    - Must not be pre-mature and in the public's interest
    - Must be compatible with the existing built form of the town
    - And the subdivision must not unreasonably impact the financial position of the Town in terms of the cost of providing additional services to the new development.

- Eighth Line is a local road, which serves a low volume of traffic and provide access to individual properties. The required R-O-W width is 26 metres. The applicant must confirm centre line of R-O-W. It is anticipated that a total widening of 6.0 m will be required, as a result a minimum 3 metre widening will be required from the subject site.
- Site currently zoned OS1, EP1, FD. Will require an appropriate site specific zone for the proposed development. Effort should be made to establish zone categories in keeping with the recently LPAT approved Solmar by-law. A copy can be obtained from the Town, if required.
- Require parkland dedication: up to 5% of the land area or 5% of the value of the land. Will require an appraisal report if providing compensation.
- Consult with Town Infrastructure to determine if park, cash in lieu, or a combination of both will be required.
- Issues with site plan:
    - Infrastructure does not support a park on top of the SWM pond

Submission requirements for a Zoning By-law Amendment and Draft Plan of Subdivision Application:

- **Boundary/Topographic Survey**
- **Up to date Parcel Abstract**
- **Planning Justification Report, with draft by-law**
- **Urban Design Brief, to be peer reviewed by The Planning Partnership**
- **Park Plan** (can be submitted with the 2nd submission)
- **Draft Plan of Subdivision**
- **Natural Heritage Evaluation, to be peer reviewed**
- **Transportation Impact Study, to be peer reviewed**
- **Stage 1 & 2 Archaeological Study**
- **Hydrogeological and geotechnical studies**
- **Phase 1 Environmental Assessment**

Infrastructure – Nick Colucci, Director of Infrastructure
Nick.colucci@erin.ca or 519-855-4407 ext. 227
Joe Mullan, Ainley Group (Town Peer Reviewer)

Stormwater

- Further to the proponents' comments about "clean" Stormwater and "dirty" Stormwater being directed to separate locations within the development, it was noted that additional details would be required on how this would work. Also, if this means a two piped storm sewer system (for clean and dirty water) through-out the development the Town may not be interested, due to the additional infrastructure and associated long term maintenance costs.
- The Town are not interested in having an underground stormwater facility/reservoir in the Park Block, as opposed to a traditional stormwater pond, due to the additional infrastructure and associated long term maintenance costs.

- The Town would like the proponent to investigate the possibility of a joint traditional stormwater management pond with the Langen Development lands, which are located on the upstream, side of the 8th line.
- The easement to the proposed Stormwater Pond 2 will need to be a minimum 9 or possibly 12 metres wide to accommodate an overland flow route and access road, etc.

Wastewater

- In accordance with the Town's Wastewater Class EA, a Sewage Pump station will be required to collect the sewage flows and convey them, via forcemain, along Dundas Street West and discharge to the Town's new Trunk Sewer at the intersection with Main Street.
- To avoid having an additional Sewage Pumping Station within the adjacent Langen development lands, the Town would like the proponent to investigate the possibility of a joint Sewage Pumping Station for both developments.

Water

- As per the Town's Water Class EA, prepared by Triton Engineering, new Municipal wells and additional Fire Storage Reservoirs will have to be constructed to accommodate all the proposed developments with Erin & Hillsburgh.
- Coordination will be required with the Town regarding the timing of these new Municipal wells and additional Fire Storage Reservoirs.
- The Town are in the process of retaining a consultant to develop a new Water Model for the existing and future water system. Pending the results of the model, which should be available in early 2022, the existing watermains on the 8th Line and/or Dundas St West may need to upgraded to a larger diameter in conjunction with the proposed development on each side of the 8th Line.
- The proposed easement along the south property line will need to be increased in width to accommodate a municipal watermain and sidewalk/trail to connect to Erin Heights Drive. Also make this ensure that this easement lines up with the existing unopened road allowance between 35 and 37 Erin Heights Drive.
- An additional easement will be required to be aligned with the existing easement between 21 and 23 Erin Heights Drive.

Transportation

- A widening (anticipated to be 3m, but to be confirmed later) will be required along the 8th Line.
- The 8th Line (Sideroad 17 to Dundas St West) and Dundas St West (8th Line to Main St) will require full reconstruction (water, storm, sanitary, curbs, sidewalks, streetlights, etc.) in conjunction with the proposed development.
- Following the submission of an acceptable **Traffic Impact Study** for the proposed development, existing intersections, external to the development, may need to be reconstructed with left or right turn lanes and/or traffic signals.
- The roads within the development should be a minimum of 20m in accordance with Town standards.

- The proposed road bulb within the eastern portion of the development is not acceptable to the Town and should be reconfigured.

Building Department – Becky Montyro, Director of Building & Enforcement/CBO
Becky.montyro@erin.ca or 519-855-4407 ext. 224

- No comments at this time

Fire Services – Jim Sawkins, Fire Chief
Jim.sawkins@erin.ca or 519-855-4407 ext. 243

- Please contact to confirm submission requirements.

Wellington County – Meagan Ferris, Manager of Planning and Environment
Meaganf@wellington.ca or 519-837-2600 ext. 2120

- The Town's Official Plan policies are applicable; however, the general County policies and the general Urban Centre policies in the County Official Plan are also applicable.
- Terms of Reference for a **Traffic Impact Assessment/Study** to be reviewed and approved by the County & Town prior to preparation of the TIA
- The subject lands appear to be located within the built boundary – this development will contribute to the County's Residential Intensification target (Section 3.3.1). The County also establishes a minimum target of 16 units/ha for lands identified as Greenfield.
- An **Archaeological Assessment (Stage 1 & 2)** is required
- The **Planning Justification Report** will need to address the County Official Plan policies, including the following sections:
    - Section 3.5 – Allocating Growth
        - Policy 3.5.1 Special Policy: Hillsburgh and Erin Urban Centres. In considering and addressing this policy the applicant should discuss phasing and the status of the Town of Erin Official Plan Amendment with the Town of Erin.
    - Section 4.4 – Housing
        - A mix of housing should be incorporated into the plan – it is noted singles and townhouses are proposed.
        - A minimum of 25% of new housing units in the County will be affordable
    - Section 4.6.2 – Planning Impact Assessment
        - The Planning Justification report should consider and address this section.
    - Section 4.10.2 West Credit Subwatershed 15 – to be consider and addressed as part of the application.
    - Section 4.11 Public Spaces, Parks and Open Spaces
        - Trails, and trail connections should be provided to the satisfaction of the Town.
    - Section 4.6.3- Environmental Impact Assessment & Part 5 – Greenlands System
        - The **Environmental Impact Study** for the applications should address this Section of the Official Plan
        - A **Tree Preservation/Compensation and Enhancement Plan** is required to be submitted in support of the application.
    - Terms of Reference for the EIS to be reviewed and approved by the County, Town and CVC
    - Section 4.6.4 - Traffic Impacts Assessment & Part 12 Transportation

- The terms of reference for the **Traffic Impact Assessment** should include potential impacts to nearby County of Wellington roads/intersections, including but not limited to – Trafalgar Road, County Road 124, County Rd 23, and Main Street. Please email Pasquale Constanzo, Technical Services Supervisor at the County Roads Division at pasqualec@wellington.ca for any additional information.

Credit Valley Conservation - Lisa Hosale
Lisa.Hosale@cvc.ca

- Within the CVC regulated area
- Severance completed in 2015 delineated the natural features
- Require a scoped Environmental Impact Study to plug in SWM pond outlets
- Functional Servicing and Stormwater Management Report required.
  - Assume SWM outfalls will be outletting to watercourses. CVC can provide criteria.
- Hydro-geological study & water balance required. This site has obstacles - need to ensure current rate of infiltration is maintained with the increased paving.
- Suggest setting up meetings to help develop concepts and TORs for reports/studies

School Boards

Upper Grand District School Board
Adam Laranjeiro, Planning Technician
Adam.laranjeiro@ugdsb.on.ca or 519-822-4420 ext. 863

- The Board would impose the following conditions on this development:
  - That Education Development Charges shall be collected prior to the issuance of a building permit(s).
  - That the developer shall agree in the subdivision agreement that adequate sidewalks, lighting and snow removal (on sidewalks and walkways) will be provided to allow children to walk safely to school or to a designated bus pickup point.
  - That the developer and the Upper Grand District School Board reach an agreement regarding the supply and erection of a sign (at the developer's expense and according to the Board's specifications) affixed to the permanent development sign advising prospective residents about schools in the area.
  - That the developer shall agree in subdivision agreement to advise all purchasers of residential units and/or renters of same, by inserting the following clause in all offers of Purchase and Sale/Lease:
    "In order to limit liability, public school buses operated by the Service de transport de Wellington-Dufferin Student Transportation Services (STWDSTS), or its assigns or successors, will not travel on privately owned or maintained right-of-ways to pick up students, and potential busing students will be required to meet the bus at a congregated bus pick-up point."

Wellington Catholic District School Board

- No comments at this time.

Conseil Scolaire Viamonde

Kenny Lamizana, Planning Officer planification@csviamonde.ca • No comments
Sourcewater Protection – Emily Vandermeulen evandermeulen@centrewellington.ca or 519-846-9691 ext. 365 *See attached comment letter*

Fees Required at time of Application Submission:

Application Type	Town of Erin	Wellington County	Conservation Authority
Draft Plan of Subdivision	$5,000.00 plus $200.00 per unit $2,000.00 Deposit		
Zoning By-law Amendment	$5,000.00 plus $2,000.00 Deposit		

Notes on Fees:

- Notwithstanding the fees noted above, all fees are payable based upon the rate in the fee schedule by-law in effect on the date the application is received.
- Application fees include HST
- Further fees may be required at a later date as per the fee schedule by-law.
- Separate cheques shall be made payable to the appropriate agency.
- Additional fees may be required for peer reviewed studies.
- In addition to the fees above, any outstanding amounts owed to the Town of Erin (i.e. taxes, water, etc.) must be paid.

Sincerely,

NAME
TITLE
Town of Erin

TOWN OF ERIN

5684 Trafalgar Rd.
Hillsburgh, ON N0B 1Z0
Toll Free: 1-877-818-2888

Telephone: (519) 855-4407
Fax: (519) 855-4281
www.erin.ca

APPLICATION SUBMISSION CHECKLIST

Owner:	EC (Erin) GP Inc.
Applicant:	Armstrong Planning & Project Management
Pre-Consultation Date:	August 17, 2021
Subject Property Address:	5525 Eighth Line
Proposed Use:	Residential
Application Type(s):	Draft Plan of Subdivision & Zoning By-law Amendment Applications

Official Plan Amendment	Zoning By-law Amendment	Site Plan	Draft Plan of Subdivision and/or Condominium	Minor Variance	Drawings, Reports, Studies, etc.	Planning	Building	Infrastructure	Economic Devt	Fire services	Wellington County	CVC/GRCA	School Boards	SWP	Digital Submission	No. Paper Copies	NOTES
FORMS/DOCUMENTS/FEES																	
					Application Form(s)	☒	☐	☐	☐	☐	☒	☐	☐	☐	☒		
					Property Deed/registered easements	☒	☐	☐	☐	☐	☐	☐	☐	☐	☒		
					Copy of Checklist	☒	☐	☐	☐	☐	☐	☐	☐	☐	☒		
					Application Fee(s)	☒	☐	☐	☐	☐	☒	☐	☐	☐	☒		
					Up to Date Parcel Abstract	☒	☐	☐	☐	☐	☐	☐	☐	☐	☒		
GENERAL																	
					Legal Survey	☒	☐	☐	☐	☐	☐	☐	☐	☐	☒		
ARCHITECTURAL																	
					Site Plan with Preliminary Building Design OBC Matrix	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Floor Plan(s)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Elevation Drawings	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Building Sections/Perspectives	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Architectural/Urban Design Guidelines	☒	☐	☐	☐	☐	☐	☐	☐	☐	☒		
					Landscape Plan & Details	☒	☐	☐	☐	☐	☐	☐	☐	☐	☒		Park Plan
					Landscape Cost Estimate	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

Official Plan Amendment	Zoning By-law Amendment	Site Plan	Draft Plan of Subdivision and/or Condominium	Minor Variance	Drawings, Reports, Studies, etc.	Planning	Building	Infrastructure	Economic Devt	Fire services	Wellington County	CVC/GRCA	School Boards	SWP	Digital Submission	No. Paper Copies	NOTES
					Exterior Building Materials Sample Board	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Cultural Heritage Impact Assessment	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Shadow Study	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
ENGINEERING																	
					Site Servicing Plan	☐	☐	☒	☐	☐	☐	☒	☐	☐	☒		
					Grading Plan	☐	☐	☒	☐	☐	☐	☐	☐	☐	☒		
					Erosion & Sediment Control Plan	☐	☐	☒	☐	☐	☐	☒	☐	☐	☒		
					Lighting/Photometric Plan	☐	☐	☒	☐	☐	☐	☐	☐	☐	☒		
					Geotechnical Report	☐	☐	☒	☐	☐	☐	☒	☐	☐	☒		
					Stormwater Management Report	☐	☐	☒	☐	☐	☐	☒	☐	☐	☒		
					Functional Servicing Report	☐	☐	☒	☐	☐	☐	☒	☐	☐	☒		
					Phase 1/Phase 2 Environmental Site Assessment	☐	☐	☒	☐	☐	☐	☐	☐	☐	☒		
					Hydrogeological Assessment	☐	☐	☒	☐	☐	☐	☒	☐	☐	☒		
					Traffic Impact Analysis/Site Circulation	☒	☐	☒	☐	☐	☒	☐	☐	☐	☒		County to review TOR
					Compatibility Study (i.e. Noise, Vibration, Air, MDS)	☐	☐	☒	☐	☐	☐	☐	☐	☐	☒		
					Waste Management Plan	☐	☐	☒	☐	☐	☐	☐	☐	☐	☒		
					Water Balance Assessment	☐	☐	☒	☐	☐	☐	☒	☐	☐	☒		
					Sourcewater Protection Analysis	☐	☐	☒	☐	☐	☐	☐	☐	☐	☒		
					Section 59 Notice (Required for ICI, farm structure, residential fuel oil storage proposal in Wellhead Protection Area)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		*Contact Wellington County*
PLANNING/BUILDING/ENVIRONMENTAL																	
					Draft Official Plan/Zoning By-law amendment	☒	☐	☐	☐	☐	☒	☐	☐	☐	☒		

Official Plan Amendment	Zoning By-law Amendment	Site Plan	Draft Plan of Subdivision and/or Condominium	Minor Variance	Drawings, Reports, Studies, etc.	Planning	Building	Infrastructure	Economic Devt	Fire services	Wellington County	CVC/GRCA	School Boards	SWP	Digital Submission	No. Paper Copies	NOTES
					Planning Justification Report	☒	☐	☐	☐	☐	☒	☐	☐	☐	☒		
					Parking Standard/Justification Analysis	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Urban Design Brief	☒	☐	☐	☐	☐	☐	☐	☐	☐	☒		
					Tree Inventory Survey	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Tree Preservation, Protection/Enhancement & Removal Plan(s)	☐	☐	☒	☐	☐	☒	☐	☐	☐	☒		
					Natural Heritage Evaluation	☒	☐	☐	☐	☐	☒	☒	☐	☐	☒		County, Town & CVC to review TOR
					Fiscal Impact Assessment	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Agricultural Impact Evaluation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Stage 1 & 2 Archaeological Assessment	☒	☐	☐	☐	☐	☒	☐	☐	☐	☒		
					Sun-Shadow Study	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					OBC Building Matrix	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

OTHER AGENCIES TO BE CONTACTED BY APPLICANT PRIOR TO SUBMISSION

Agency	Contact Information	If applicable
County of Wellington (Planning)	Zachary Prince, Senior Planner T (519) 837-2600 x2064 E zacharyp@wellington.ca	☐
County of Wellington (Roads)	Pasquale Costanzo, Technical Services Supervisor T 519.837.2601 x 2250 E pasqualec@wellington.ca	☐
County of Wellington (Other)		☐
Enbridge Gas	Enbridge Gas 500 Consumers Road North York, Ontario Canada M2J 1P8	☒
Union Gas	ontugllandsing@uniongas.com	☒
Canada Post	Canada Post Corporation Deliver Planning 955 Highbury Avenue North, 2nd floor London, ON N5Y 1A3 Neil Mazey Neil.mazey@canadapost.postescanada.ca 519-281-2253	☒
Hydro One	customercommunications@hydroone.com	☒
Telecommunications Companies (i.e. Bell, Rogers, etc.)	Bell Canada c/o Attn: Circulations Intake, Planning & Design WSP 100 Commerce Valley Drive West Thornhill Ontario L3T 0A1	☒
Upper Grand District School Board	municipal.circulations@ugdsb.on.ca	☐
Wellington Catholic District School Board	tracy.mclennan@wellingtoncdsb.ca	☐
Conseil Scolaire Viamonde	planification@csviamonde.ca	
Credit Valley Conservation Authority	elizabeth.paudel@cvc.ca	☐
Grand River Conservation Authority	planning@grandriver.ca	☐
Source Water Protection	sourcewater@centrewellington.ca	☐
Region of Peel	10 Peel Centre Drive, Suite A and B Brampton, ON L6T 4B9 905-791-7800 Toll-free: 1-888-919-7800	☐
Region of Halton	1151 Bronte Road Oakville, Ontario, L6M 3L1 905-825-6000 Toll-free: 1-866-442-5866	☐
Township of Guelph/Eramosa	8348 Wellington Road 124 P.O. Box 700 Rockwood, ON N0B 2K0 (519) 856-9596 Toll Free: 1-800-267-1465 general@get.on.ca	☐
Township of Centre Wellington	1 Macdonald Square Elora, ON N0B 1S0 519.846.9691 x901 cpellizzari@centrewellington.ca	☐
Township of East Garafraxa	Township of East Garafraxa 065371 Dufferin County Road 3, Unit 2 East Garafraxa ON L9W 7J8 226-259-9400 Toll Free: 877-868-5967 jkennedy@eastgarafraxa.ca	☐
Town of Caledon	The Corporation of the Town of Caledon 6311 Old Church Road Caedon ON L7C 1J6 905-584-2272 Toll Free: 1-888-225-3366 info@caledon.ca	☐

Leslie, Steven

From: Paudel, Elizabeth <Elizabeth.Paudel@cvc.ca>
Sent: November 19, 2021 12:50 PM
To: Carleigh Oude-Reimerink; Leslie, Steven
Cc: Tanjot Bal; meaganf@wellington.ca; zacharyp@wellington.ca; Gross, Jeff; Wallis, Leanne; Jeffrey Swartz
Subject: 5525 8th Line, Erin - PD 20/242

Hi Carleigh and Steven,

Thank you for providing the EIS TOR for our review and comment. CVC staff have reviewed and provide the following comments. I have also copied colleagues at the Town and County on this email to keep them in the loop. We are happy to have meetings to discuss as necessary.

CVC Comments

1. The subject property is within the adjacent lands (i.e. 120m) to natural heritage features including a provincially significant wetland and significant woodland. Although offsite, the PSW may still be impacted by the proposed development and therefore the feature should be assessed, and the development plan should demonstrate no negative impact to the hydrologic and ecological function. The EIS TOR should include a discussion on the use of the TRCA Wetland Risk Evaluation to assess the need for a feature-based water balance, as well as determine appropriate mitigation measures to help achieve similar pre to post construction hydrologic conditions.
    a. Note that the use of the TRCA Guideline typically requires field inventories to be completed (ELC, botanical inventory, wildlife surveys, fish); please ensure the planned field work accommodates for this. Please review the field inventories recommended in the EIS TOR and ensure that all surveys are completed (e.g., marsh breeding birds, calling anurans). In the absence of appropriate field inventories CVC will assume the wetlands to be high functioning and the Guideline used accordingly.

2. Ensure that the EIS TOR and impact assessment and mitigation recommendations account for stormwater management infrastructure impacts and any required feature-based water balance mitigations.

3. Note that encroachment into offsite previously identified features will require detailed study and justification and the EIS TOR should account for this. The EIS must demonstrate avoidance hierarchy principles; any residual impacts should be offset according to the CVC Ecosystem Offsetting Guideline.

4. Please ensure the EIS includes copies of field survey data sheets, including species observations and evidence codes. All observation points, transects and routes surveyed should be clearly shown on an accompanying figure.

5. It is recommended that the EIS TOR recommend the use of the CVC Plant Selection Guideline and CVC Healthy Soils Guideline for the planned buffer enhancement plantings.

6. It is recommended that the EIS TOR recommend the use of the CVC Stormwater Management Pond Planting Guidelines in the design of the stormwater management pond.

7. It is recommended that a form of barrier be placed around the limit of the development to deter the public and pets from encroaching into the surrounding nature features (i.e., rear lot fencing).

Thank you for submitting the EIS TOR for our review. We look forward to working with you on this file.

Best regards,

I’m working remotely. The best way to reach me is by email, mobile phone or Microsoft Teams.

Elizabeth Paudel | MES | she/her/hers
Planner (Acting), Planning and Development Services | Credit Valley Conservation
905-670-1615 ext 236 | M: 437-339-3201
elizabeth.paudel@cvc.ca | cvc.ca

Credit Valley Conservation
inspired by nature

2021 CANADA'S GREENEST EMPLOYERS

GREATER TORONTO'S TOP 2021 EMPLOYERS

View our privacy statement

Leslie, Steven

From: Tanjot Bal <Tanjot.Bal@erin.ca>
Sent: October 28, 2021 11:56 AM
To: Leslie, Steven; elizabeth.paudel@cvc.ca
Cc: Gross, Jeff; Wallis, Leanne; Carleigh Oude-Reimerink; Jeffrey Swartz; zacharyp@wellington.ca; meaganf@wellington.ca
Subject: RE: 5525 Eighth Line, Erin - Scoped EIS Terms of Reference

Good Afternoon Steven,

Please find the Town & County's comments in response to the TOR for the Scoped Environmental Impact Assessment, from our peer reviewer.

1. The proposed botanical inventory and ELC mapping is required and was completed during one site visit in August 2021. This is acceptable provided there is no stormwater management intrusions into adjacent off-site woodlands or wetlands caused by site alterations and/or discharges of stormwater. If there is the potential for off-site impacts to vegetation it will be necessary for WSP to conduct spring and early summer botanical surveys in these specific areas.

2. Breeding bird surveys are required on this site and they were completed during an appropriate period in June 2021.

3. There are numerous trees on the golf course and in the road right-of-way which occur as scattered individuals or in small linear clusters. An inventory of these trees should be carried out and any rare trees and high quality mature specimens should be identified in a Tree Preservation/Compensation and Enhancement Plan.

4. I agree that the EIS must assess the potential for Species at Risk (SAR) habitat on the site and adjacent lands and carry out appropriate targeted field surveys for these species and any other species that could represent significant wildlife habitat.

5. The EIS must satisfy the requirements outlined in Party 5 – The Greenlands System of the Wellington County Official Plan. In particular, development and site alteration is not permitted in provincially significant wetlands and fish habitat which occur on adjacent lands.

Please note the estimated cost of the peer review is $3,500 plus hst. This will include 2 site inspections. The cost of this review may increase, if there are more than 2 reviews conducted of the EIS. The applicant is responsible for the costs of this review.

Please confirm that you have received this email and that site visits can take place in November, before there is snow on the ground.

Thank you,

Tanjot Bal, MCIP, RPP
Senior Planner
Town of Erin
Tel: 519.855.4407 Ext. 242
Email: Tanjot.Bal@erin.ca

From: Leslie, Steven [mailto:Steven.Leslie2@wsp.com]
Sent: Friday, October 1, 2021 11:37 AM
To: Tanjot Bal <Tanjot.Bal@erin.ca>; zacharyp@wellington.ca; elizabeth.paudel@cvc.ca
Cc: Gross, Jeff <Jeff.Gross@wsp.com>; Wallis, Leanne <leanne.wallis@wsp.com>; Carleigh Oude-Reimerink <carleigh@armstrongplan.ca>; Jeffrey Swartz <jswartz@empirecommunities.com>
Subject: 5525 Eighth Line, Erin - Scoped EIS Terms of Reference

Hello,

Please find attached for your review and comment, a Terms of Reference for a Scoped Environmental Impact Study for a proposed development at 5525 Eighth Line in the Town of Erin (currently the Erin Heights Golf Course).

If you have any questions or concerns, please do you not hesitate to contact myself or Jeff Gross (cc'd).

Thank you and we look forward to working with you on this file,

Steven

Steven Leslie, B.E.S.
Ecologist
Ecology & Environmental Impact Assessment (EIA)

WSP Canada Inc.
582 Lancaster Street West
Kitchener, Ontario,
N2K 1M3 Canada

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APPENDIX C

Vegetation Survey Results and Plant List

SCIENTIFIC NAME	COMMON NAME	CC [1]	CW[1]	G_RANK[3]	S_RANK[4]	COSEWIC[5]	SARA[6]	SARO[7]	PEEL/CVC (Kaiser, 2001)[8]	WELLINGTON COUNTY (Frank & Anderson 2009)[8]	WELLINGTON-DUFFERIN (Riley et al. 1989)[8]	NATIVE STATUS[9]	CUH1-A	FOD3-1	FOM4-2	SWM4-1	SWM3-2	FOM6-1	Golf Greens and around buildings
Abies balsamea	Balsam Fir	5	-3	G5	S5				X		X	N			X	X	X	X	
Acer negundo	Manitoba Maple	0	0	G5	S5				X		X	N	X	X	X		X		X
Acer nigrum	Black Maple	7	3	G5	S4?				X		X	N		X					
Acer platanoides	Norway Maple		5	GNR	SNA				X		X	I	X						
Acer rubrum	Red Maple	4	0	G5	S5				X		X	N						X	
Acer saccharum	Sugar Maple	4	3	G5	S5				X		X	N	X	X	X			X	X
Acer spicatum	Mountain Maple	6	3	G5	S5				X		X	N				X	X		
Achillea millefolium	Common Yarrow		3	G5	SNA				X		X	I			X				
Actaea sp.	Baneberry sp.											N			X				
Aegopodium podagraria	Goutweed		0	GNR	SNA				X		X	I	X						
Alliaria petiolata	Garlic Mustard		0	GNR	SNA				X			I	X	X				X	
Alnus incana	Speckled Alder	6	-3	G5	S5				X		X	N					X		
Anemonastrum canadense	Canada Anemone	3	-3	G5	S5				X		X	N					X		
Aralia nudicaulis	Wild Sarsaparilla	4	3	G5	S5				X		X	N			X	X		X	
Arctium minus	Common Burdock		3	GNR	SNA				X		X	I	X	X			X		
Arisaema triphyllum	Jack-in-the-pulpit	5	-3	G5	S5				X		X	N		X	X	X		X	
Athyrium filix-femina var. angustum	Northeastern Lady Fern	4	0	G5T5	S5				X		X	N		X		X		X	
Barbarea vulgaris	Bitter Wintercress		0	GNR	SNA				X		X	I					X		
Betula alleghaniensis	Yellow Birch	6	0	G5	S5				X		X	N				X	X	X	
Betula papyrifera	Paper Birch	2	3	G5	S5				X		X	N			X	X		X	
Betula sp.	Birch sp.												X						
Bidens frondosa	Devil's Beggarticks	3	-3	G5	S5				X		X	N						X	
Carex arctata	Drooping Woodland Sedge	5	5	G5	S5				X		X	N			X			X	
Carex flava	Yellow Sedge	5	-5	G5	S5				L		X	N			X				
Carex pedunculata	Long-stalked Sedge	5	3	G5	S5				X		X	N			X	X		X	
Caulophyllum giganteum	Giant Blue Cohosh	5	5	G4G5	S5				R/L			N						X	
Centaurea stoebe	Spotted Knapweed		5	GNR	SNA				X			I			X				
Chelone glabra	White Turtlehead	7	-5	G5	S5				X		X	N					X		
Circaea canadensis	Broad-leaved Enchanter's Nightshade	2	3	G5	S5				X		X	N	X	X	X		X	X	
Cirsium vulgare	Bull Thistle		3	GNR	SNA				X		X	I	X				X		
Clematis virginiana	Virginia Clematis	3	0	G5	S5				X		X	N					X		
Clinopodium vulgare	Wild Basil	4	5	G5	S5				X		X	N	X						
Clintonia borealis	Yellow Clintonia	7	0	G5	S5				X		X	N						X	
Convallaria majalis	European Lily-of-the-valley		5	G5	SNA				X			I			X				
Cornus alternifolia	Alternate-leaved Dogwood	6	3	G5	S5				X		X	N	X	X	X		X	X	
Cornus sericea	Red-osier Dogwood	2	-3	G5	S5				X		X	N	X	X			X		
Cystopteris bulbifera	Bulblet Bladder Fern	5	-3	G5	S5				X		X	N				X	X	X	
Dactylis glomerata	Orchard Grass		3	GNR	SNA				X		X	I	X	X					
Danthonia spicata	Poverty Oatgrass	5	5	G5	S5				X		X	N			X				
Daucus carota	Wild Carrot		5	GNR	SNA				X		X	I	X	X	X				
Dryopteris carthusiana	Spinulose Wood Fern	5	-3	G5	S5				X		X	N		X		X		X	
Dryopteris cristata	Crested Wood Fern	7	-5	G5	S5				X		X	N				X			
Dryopteris marginalis	Marginal Wood Fern	5	3	G5	S5				X		X	N				X			
Echinocystis lobata	Wild Cucumber	3	-3	G5	S5				X		X	N					X		
Elaeagnus umbellata	Autumn Olive		3	GNR	SNA				X			I		X					
Epilobium sp.	Willowherb sp.															X			
Epipactis helleborine	Broad-leaved Helleborine		3	GNR	SNA				X		X	I				X	X	X	
Equisetum arvense	Field Horsetail	0	0	G5	S5				X		X	N			X	X	X	X	
Equisetum hyemale	Common Scouring-rush	2	0	G5	S5				X		X	N			X				
Erigeron canadensis	Canada Horseweed	0	3	G5	S5				X		X	N		X					
Erigeron sp.	Fleabane sp.														X				
Eupatorium perfoliatum	Common Boneset	2	-3	G5	S5				X		X	N					X		
Euthamia graminifolia	Grass-leaved Goldenrod	2	0	G5	S5				X		X	N		X			X		
Eutrochium maculatum var. maculatum	Spotted Joe Pye Weed	3	-5	G5T5	S5				X		X	N					X		
Fagus grandifolia	American Beech	6	3	G5	S4				X		X	N						X	X
Fragaria virginiana ssp. virginiana	Wild Strawberry	2	3	G5T5	S5				X		X	N	X	X					
Fraxinus americana	White Ash	4	3	G5	S4				X		X	N		X	X			X	
Fraxinus nigra	Black Ash	7	-3	G5	S4	THR			X		X	N					X		
Fraxinus pennsylvanica	Green Ash	3	-3	G5	S4				X			N	X			X	X		X

SCIENTIFIC NAME	COMMON NAME	CC [1]	CW[1]	G_RANK[3]	S_RANK[4]	COSEWIC[5]	SARA[6]	SARO[7]	PEEL/CVC (Kaiser, 2001)[8]	WELLINGTON COUNTY (Frank & Anderson 2009)[8]	WELLINGTON-DUFFERIN (Riley et al. 1989)[8]	NATIVE STATUS[9]	CUH1-A	FOD3-1	FOM4-2	SWM4-1	SWM3-2	FOM6-1	Golf Greens and around buildings
Galeopsis tetrahit	Common Hemp-nettle		3	GNR	SNA				X		X	I		X			X		
Geranium robertianum	Herb-Robert	2	3	G5	S5				X		X	I	X	X			X		
Geum urbanum	Wood Avens		5	G5	SNA				X			I	X	X					
Glechoma hederacea	Ground-ivy		3	GNR	SNA				X		X	I	X				X		
Gleditsia triacanthos	Honey Locust	8	0	G5	S2?				X			N							X
Glyceria striata	Fowl Mannagrass	3	-5	G5	S5				X		X	N				X	X	X	
Gymnocarpium dryopteris	Common Oak Fern	7	3	G5	S5				X		X	N				X			
Hieracium sp.	Hawkweed sp.														X				
Hypericum perforatum	Common St. John's-wort		5	GNR	SNA				X		X	I		X					
Impatiens capensis	Spotted Jewelweed	4	-3	G5	S5				X		X	N				X	X	X	
Juglans nigra	Black Walnut	5	3	G5	S4?				X		X Int	N	X	X					
Juncus effusus	Soft Rush	4	-5	G5	S5							N					X		
Juncus tenuis	Path Rush	0	0	G5	S5				X		X	N			X				
Lactuca sp.	Lettuce sp.												X						
Lamium purpureum	Purple Dead-nettle		5	GNR	SNA							I	X						
Laportea canadensis	Canada Wood Nettle	6	-3	G5	S5				X		X	N					X		
Larix laricina	Tamarack	7	-3	G5	S5				X		X	N					X		
Leonurus cardiaca	Common Motherwort		5	GNR	SNA				X		X	I		X					
Leucanthemum vulgare	Oxeye Daisy		5	GNR	SNA				X		X	I			X				
Linaria vulgaris	Butter-and-eggs		5	GNR	SNA				X		X	I		X					
Lobelia inflata	Indian Tobacco	3	3	G5	S5				X		X	N						X	
Lobelia siphilitica	Great Blue Lobelia	6	-3	G5	S5				X		X	N					X		
Lonicera tatarica	Tatarian Honeysuckle		3	GNR	SNA				X		X	I					X		
Lotus corniculatus	Garden Bird's-foot Trefoil		3	GNR	SNA				X		X	I			X				
Lysimachia ciliata	Fringed Yellow Loosestrife	4	-3	G5	S5				X		X	N					X		
Maianthemum canadense ssp. canadense	Wild Lily-of-the-valley	5	3	G5T5	S5							N			X	X		X	
Maianthemum racemosum	Large False Solomon's-seal								X		X	N						X	
Malus pumila	Common Apple		5	G5	SNA				X		X	I	X						X
Malus sp.	Apple sp.													X					
Matteuccia struthiopteris	Ostrich Fern	5	0	G5	S5				X		X	N	X				X	X	
Mentha spicata	Spearmint		-3	GNR	SNA				X		SR	I	X						
Myosotis laxa	Small Forget-me-not	6	-5	G5	S5				X		X	N				X			
Nasturtium sp.	Watercress sp.											I				X			
Nepeta cataria	Catnip		3	GNR	SNA				X		X	I	X						
Onoclea sensibilis	Sensitive Fern	4	-3	G5	S5				X		X	N		X	X	X	X	X	
Osmundastrum cinnamomeum	Cinnamon Fern	7	-3	G5	S5				X		X	N				X			
Oxalis stricta	European Wood-sorrel		3	G5	S5				X		X	I	X	X			X	X	
Parthenocissus sp.	Creeper sp.												X	X	X		X	X	
Phalaris arundinacea var. arundinacea	Reed Canarygrass	0	-3	G5TNR	S5				X		X	N					X		
Phleum pratense	Common Timothy		3	GNR	SNA				X		X	I					X		
Physocarpus opulifolius	Eastern Ninebark	5	-3	G5	S5				R/L		X	N			X				
Picea glauca	White Spruce	6	3	G5	S5				L		X	N		X			X		
Picris hieracioides	Hawkweed Oxtongue		5	G5	SNA						X	I	X	X					
Pinus sylvestris	Scots Pine		3	GNR	SNA				X		X	I			X				
Plantago lanceolata	English Plantain		3	G5	SNA				X		X	I	X		X				
Plantago major	Common Plantain		3	G5	SNA				X		X	I	X		X			X	
Poa compressa	Canada Bluegrass	0	3	GNR	SNA				X		X Int	I			X				
Poa pratensis ssp. pratensis	Kentucky Bluegrass		3	G5T5	SNA				X		X	I		X			X		
Polygonatum pubescens	Hairy Solomon's Seal	5	5	G5	S5				X	R1	X	N						X	
Populus balsamifera	Balsam Poplar	4	-3	G5	S5				X		X	N		X			X		
Populus tremuloides	Trembling Aspen	2	0	G5	S5				X		X	N		X	X	X	X		X
Prunella vulgaris ssp. lanceolata	Lance-leaved Self-heal		0	G5T5	S5				X			N			X				
Prunus serotina	Black Cherry	3	3	G5	S5				X		X	N		X	X	X	X	X	X
Prunus virginiana	Chokecherry	2	3	G5	S5				X		X	N	X	X	X	X	X	X	
Pteridium aquilinum	Bracken Fern	2	3	G5	S5				X		X	N			X				
Pyrola elliptica	Shinleaf	5	5	G5	S5				X		X	N				X			
Ranunculus acris	Common Buttercup		0	G5	SNA				X		X	I			X				
Ranunculus hispidus var. caricetorum	Northern Swamp Buttercup	5	-5	G5	S5				X		X	N					X		
Ranunculus recurvatus	Hooked Buttercup	4	-3	G5	S5				X		X	N						X	
Rhamnus cathartica	European Buckthorn		0	GNR	SNA				X		X	I	X	X	X	X		X	X
Rhus typhina	Staghorn Sumac	1	3	G5	S5				X		X	N	X	X					

SCIENTIFIC NAME	COMMON NAME	CC [1]	CW[1]	G_RANK[3]	S_RANK[4]	COSEWIC[5]	SARA[6]	SARO[7]	PEEL/CVC (Kaiser, 2001)[8]	WELLINGTON COUNTY (Frank & Anderson 2009)[8]	WELLINGTON-DUFFERIN (Riley et al. 1989)[8]	NATIVE STATUS[9]	CUH1-A	FOD3-1	FOM4-2	SWM4-1	SWM3-2	FOM6-1	Golf Greens and around buildings
Ribes americanum	American Black Currant	4	-3	G5	S5				X		X	N		X			X		
Ribes cynosbati	Eastern Prickly Gooseberry	4	3	G5	S5				X		X	N		X					
Rubus idaeus ssp. strigosus	North American Red Raspberry	2	3	G5T5	S5				X		X	N	X	X			X		
Rudbeckia hirta	Black-eyed Susan	0	3	G5	S5				X		X	N			X				
Rumex crispus	Curly Dock		0	GNR	SNA				X		X	I		X					
Rumex obtusifolius	Bitter Dock		-3	GNR	SNA				X		X	I			X		X		
Sagittaria sp.	Arrowhead sp.											N					X		
Salix alba	White Willow		-3	G5	SNA				X			I			X				
Salix discolor	Pussy Willow	3	-3	G5	S5				X		X	N	X						
Salix eriocephala	Cottony Willow	4	-3	G5	S5				X		X	N		X			X		
Salix purpurea	Purple Willow		-3	G5	SNA				X		X	I					X		
Salix sp.	Willow sp.																X		
Sambucus canadensis	Common Elderberry	5	-3	G5	S5				X		X	N					X		
Sanguinaria canadensis	Bloodroot	5	3	G5	S5				X		X	N			X				
Scutellaria lateriflora	Mad-dog Skullcap	5	-5	G5	S5				X		X	N				X			
Solanum dulcamara	Climbing Nightshade		0	GNR	SNA				X		X	I	X			X	X	X	
Solidago altissima var. altissima	Eastern Tall Goldenrod	1	3	G--T5	S5				X		X	N	X	X			X		
Solidago nemoralis ssp. nemoralis	Gray-stemmed Goldenrod	2	5	G5T5	S5				X		X	N			X				
Solidago rugosa ssp. rugosa	Northern Rough-stemmed Goldenrod	4	0	G5T5	S5				X		X	N			X	X		X	
Sonchus arvensis ssp. arvensis	Field Sow-thistle		3	GNRTNR	SNA				X		X	I					X		
Sorbus aucuparia	European Mountain-ash		5	G5	SNA				X		X	I		X	X				
Sparganium sp.	Burreed sp.											N					X		
Spiranthes sp.	Ladies'-tresses sp.											N			X				
Symphyotrichum lanceolatum ssp. lanceolatum	Panicled Aster	3	-3	G5T5	S5				X		X	N					X		
Symphyotrichum lateriflorum var. lateriflorum	Calico Aster	3	0	G5T5	S5				X		X	N	X	X	X		X	X	
Symphyotrichum novae-angliae	New England Aster	2	-3	G5	S5				X		X	N		X					
Symphyotrichum puniceum	Purple-stemmed Aster	6	-5	G5	S5				X		X	N				X			
Taraxacum officinale	Common Dandelion		3	G5	SNA				X		X	I	X	X			X	X	
Taxus canadensis	Canada Yew	7	3	G5	S4				X		X	N		X				X	
Thalictrum pubescens	Tall Meadow-rue	5	-3	G5	S5				X		X	N					X		
Thuja occidentalis	Eastern White Cedar	4	-3	G5	S5				X		X	N	X		X	X	X	X	
Tilia americana	Basswood	4	3	G5	S5				X		X	N					X	X	
Trifolium arvense	Rabbit's-foot Clover		5	GNR	SNA				X		X	I	X						
Trifolium pratense	Red Clover		3	GNR	SNA				X		X	I			X				
Trillium sp.	Trillium sp.															X		X	
Tsuga canadensis	Eastern Hemlock	7	3	G5	S5				X		X	N				X		X	
Tussilago farfara	Coltsfoot		3	GNR	SNA				X		X	I			X	X	X		
Typha latifolia	Broad-leaved Cattail	1	-5	G5	S5				X		X	N					X		
Ulmus americana	White Elm	3	-3	G5	S5				X		X	N	X	X			X		
Verbascum thapsus	Common Mullein		5	GNR	SNA				X		X	I		X					
Veronica anagallis-aquatica	Water Speedwell		-5	G5	SNA				X		X	I					X		
Veronica officinalis	Common Speedwell		5	G5	SNA				X		X	I						X	
Viburnum opulus ssp. opulus	Cranberry Viburnum		-3	G5TNR	SNA				X			I			X	X			
Viola sp.	Violet sp.												X		X			X	
Vitis riparia	Riverbank Grape	0	0	G5	S5				X		X	N	X	X	X	X	X		

VASCULAR PLANT SPECIES LIST LEGEND

Scientific Name, Common Name, and Family
Based on Vascan and NHIC (February 28, 2020)

Vascan: http://data.canadensys.net/vascan/search
NHIC: https://www.sdc.gov.on.ca/sites/MNRF-PublicDocs/EN/ProvincialServices/ONTARIO_SPECIES_LISTS.zip

[1] Coefficient of Conservatism, Coefficient of Wetness, Weediness, and Physiology/Habit
Oldham, M. J., W. D. Bakowsky and D. A. Sutherland. 1995. Floristic Quality Assessment System for Southern Ontario. Natural Heritage Information Centre, Ministry of Natural Resources. Peterborough, Ontario.
CC and CW values reflect updates by NHIC, current as of *February 28, 2020*).

CC: Coefficient of Conservatism. Rank of 0 to 10 based on plants degree of fidelity to a range of synecological parameters: (0-3) Taxa found in a variety of plant communities; (4-6) Taxa typically associated with a specific plant community but tolerate moderate disturbance; (7-8) Taxa associated with a plant community in an advanced successional stage that has undergone minor disturbance; (9-10) Taxa with a high fidelity to a narrow range of synecological parameters.
CW: Coefficient of Wetness. Value between 5 and –5. A value of –5 is assigned to Obligate Wetland (OBL) and 5 to Obligate Upland (UPL), with intermediate values assigned to the remaining categories.
Weediness: Assigned to all non-native species and range from -1 (low impact of the species on natural areas) to -3 (high impact of the species on natural areas).
Habit: Physiology/Habit. The growth form of the species (e.g. forb, shrub, tree).

[2] OWES Wetland Plant List
Ontario Ministry of Natural Resources. 2013. Ontario Wetland Evaluation System Southern Manual. 3rd Edition, Version 3.3; Ontario Ministry of Natural Resources. 2013. Ontario Wetland Evaluation System Northern Manual. 1st Edition, Version 1.3

Species presence or absence from the Ontario Wetland Evaluation System (OWES) Wetland Plant List.
Codes are defined as follows:
X: Present on the list

[3] G-Rank (Global)
Global Status from Nature Serve (via NHIC, February 28, 2020)
Nature Serve: http://explorer.natureserve.org/
NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xlsx

Global ranks are assigned by a consensus of the network of Conservation Data Centres (CDCs), scientific experts, and the Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies, or variety.

Global (G) Conservation Status Ranks
G1: Critically Imperiled - At very high risk of extinction or elimination due to very restricted range, very few populations or occurrences, very steep declines, very severe threats, or other factors.
G2: Imperiled - at high risk of extinction or elimination due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.
G3: Vulnerable - At moderate risk of extinction or elimination due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.
G4: Apparently Secure - At fairly low risk of extinction or elimination due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or other factors.
G5: Secure - At very low risk or extinction or elimination due to a very extensive range, abundant populations or occurrences, and little to no concern from declines or threats.

G#G#: Range Rank – A numeric range rank (e.g., G2G3, G1G3) is used to indicate the range of uncertainty about the exact status of a taxon or ecosystem type. Ranges cannot skip more than two ranks (e.g., GU should be used rather than G1G4).

GX: Presumed Extinct - Not located despite intensive searches and virtually no likelihood of rediscovery.

GH: Possibly Extinct - Known from only historical occurrences but still some hope of rediscovery. Examples of evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species has been searched for unsuccessfully, but not thoroughly enough to presume that it is extinct or eliminated throughout its range.

GU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

GNR: Unranked – Global rank not yet assessed

GNA: Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities. A global conservation status rank may be not applicable for several reasons, related to its relevance as a conservation target. For species, typically the species is a hybrid without conservation value, or of domestic origin. For ecosystems, the type is typically non-native (e.g, many ruderal vegetation types), agricultural (e.g. pasture, orchard) or developed (e.g. lawn, garden, golf course).

?: Inexact Numeric Rank – Denotes inexact numeric rank; this should not be used with any of the Variant Global Conservation Status Ranks or GX or GH.

T#: Infraspecific Taxon (trinomial) - The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles outlined above. For example, the global rank of a critically imperiled subspecies of an otherwise widespread and common species would be G5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species, for example, a G1T2 subrank should not occur. A vertebrate animal population (e.g., listed under the U.S. Endangered Species Act or assigned candidate status) may be tracked as an infraspecific taxon and given a T rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic status.

Q: Questionable taxonomy that may reduce conservation priority – Distinctiveness of this entity as a taxon or ecosystem type at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon or type in another taxon or type, with the resulting taxon having a lower priority (numerically higher) conservation status rank. The “Q” modifier is only used at a global level and not at a national or subnational level.

C: Captive or Cultivated Only – Taxon or ecosystem at present is presumed or possibly extinct or eliminated in the wild across their entire native range but is extant in cultivation, in captivity, as a naturalized population (or populations) outside their native range, or as a reintroduced population or ecosystem restoration, not yet established. The “C” modifier is only used at a global level and not at a national or subnational level. Possible ranks are GXC or GHC. This is equivalent to “Extinct” in the Wild (EW) in IUCN’s Red List terminology (IUCN 2001).

[4] S-Ranks (Provincial)

Provincial Status from the NHIC (February 28, 2020)

NHIC: http://www.sse.gov.on.ca/sites/MNR-PublicDocs/EN/ProvincialServices/Ontario_Vascular_Plants.xlsx

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

Provincial/Sub-national (S) Conservation Status Ranks

S1: Critically Imperiled – At very high risk of extirpation in the jurisdiction due to very restricted range, very few populations or occurrences, very steep declines, severe threats, or other factors.

S2: Imperiled – At high risk of extirpation in the jurisdiction due to restricted range, few populations or occurrences, steep declines, severe threats, or other factors.

S3: Vulnerable – At moderate risk of extirpation in the jurisdiction due to a fairly restricted range, relatively few populations or occurrences, recent and widespread declines, threats, or other factors.

S4: Apparently Secure – At a fairly low risk of extirpation in the jurisdiction due to an extensive range and/or many populations or occurrences, but with possible cause for some concern as a result of local recent declines, threats, or Secure – At very low or no risk of extirpation in the jurisdiction due to a very extensive range, abundant populations or occurrences, with little to no concern from declines or threats.

S#S#: Range Rank – A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

SX: Presumed Extirpated – Species or ecosystem is believed to be extirpated from the jurisdiction (province). Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered. [equivalent to "Regionally Extinct" in IUCN Red List terminology]

SH: Possibly Extirpated (Historical) – Known from only historical records but still some hope of rediscovery. There is evidence that the species or ecosystem may no longer be present in the jurisdiction, but not enough to state this with certainty. Examples of such evidence include (1) that a species has not been documented in approximately 20-40 years despite some searching and/or some evidence of significant habitat loss or degradation; (2) that a species or ecosystem has been searched for unsuccessfully, but not thoroughly enough to presume that it is no longer present in the jurisdiction.

SNR: Unranked – Nation of state/province conservation status not yet assessed.

SU: Unrankable – Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SNA: Not Applicable – A conservation status rank is not applicable because the species is not a suitable target for conservation activities (e.g., long distance aerial and aquatic migrants, hybrids without conservation value, and non-native species.

?: Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

T#: Infraspecific Taxon (trinomial) - The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank. Rules for assigning T-ranks follow the same principles outlined above. For example, the subnational rank of a critically imperiled subspecies of an otherwise widespread and common species would be S5T1. A T subrank cannot imply the subspecies or variety is more abundant than the species, for example, a S1T2 subrank should not occur. A vertebrate animal population may be tracked as an infraspecific taxon and given a T rank; in such cases a Q is used after the T-rank to denote the taxon's informal taxonomic status.

[5] COSEWIC (Committee on the Status of Endangered Wildlife in Canada)

The federal review process is implemented by COSEWIC (Status as of February 28, 2020)

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction.
https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html

COSEWIC Conservation Status Ranks

EXT: Extinct – A species that no longer exists.

EXP: Extirpated – A species no longer existing in the wild in Canada, but occurring elsewhere.

END: Endangered – A species facing imminent extirpation or extinction.

THR: Threatened – A species likely to become endangered if limiting factors are not reversed.

SC: Special Concern (formerly vulnerable) – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

NAR: Not At Risk – A species that has been evaluated and found to be not at risk of extinction given the current circumstances.

DD: Data Deficient – Available information is insufficient (a) to resolve a species' eligibility for assessment or (b) to permit an assessment of the species' risk of extinction.

[6] SARA (Species at Risk Act) Status and Schedule

Federal status from the Government of Canada's Species at Risk Public Registry (Status as of February 28, 2020)
http://www.registrelep-sararegistry.gc.ca/

The Act establishes Schedule 1, as the official list of species at risk in Canada. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed species are implemented. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern.

SARA Conservation Status Ranks
EXT: Extinct – A species that no longer exists.
EXP: Extirpated – A species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END: Endangered – A species that is facing imminent extirpation or extinction.
THR: Threatened – A species likely to become endangered if limiting factors are not reversed.
SC: Special Concern – A species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

[7] SARO (Species at Risk in Ontario)
Provincial status from MNRF (Status as of February 28, 2020)
https://www.ontario.ca/environment-and-energy/species-risk-ontario-list

The provincial review process is implemented by the MNR's Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is an independent advisory panel to the Ontario Ministry of Natural Resources and Forestry that assesses the status of species at risk of extinction.

MNRF Conservation Status Ranks
EXP: Extirpated – Extirpated – Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
END: Endangered – Lives in the wild in Ontario but is facing imminent extinction or extirpation.
THR: Threatened – Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
SC: Special Concern – Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.

[8] Regional Status

Peel and/or CVC
Kaiser, Jeff. 2001. The Vascular Plant Flora of the Region of Peel and the Credit River Watershed. Prepared for Credit Valley Conservation, The Regional Municipality of Peel, and the Toronto and Region Conservation Authority.

Codes are defined as follows:
R: Regionally Rare (GTA), fewer than 40 locations
L: Locally Rare (Peel and Credit River Watershed), fewer than 11 stations

Simcoe, Hamilton-Brant-Wentworth-Oxford, Wellington-Dufferin, Durham (Pickering-Uxbridge-Brock-Oshawa-Whitby-Ajax-Scugog-Clarington), Peterborough-Durham-Victoria-Northumberland
Riley, J. e.t al. 1989. The Distribution and Status of the Vascular Plants of Central Region. Ontario Ministry of Natural Resources, Central Region, Richmond Hill, ON.

Codes are defined as follows:
E: Endangered- "For the purposes of this checklist, an endangered species is considered to be one regulated under Ontario's Endangered Species Act. The only species so regulated is the Cucumber Tree (*Magnolia acuminata*)."
N: Nationally Rare – rare in every province in which it occurs. A rare species is one that because of biological characteristics, occurs at edge of range, exists in low numbers, or in very restricted areas in the region under consideration.
P: Provincially Rare – a species S-ranked (S1-SX) from the National Museum's "Atlas of Rare Vascular Plants of Ontario" (Argus et.al. 1982-88).

R: Regionally Rare – Native species are considered regionally rare if the species in considered rare wherever it occurs in Central Region especially in areas where recent local determinations of rarity have been made and/or if it is considered provincially rare in the portions in which species' status is insufficiently documented. Only naturally occurring populations are considered.
X: Occurs within the region.
+ or I: Introduced species.

Wellington County (includes City of Guelph)
Frank, R and A. Anderson. 2009. The Flora of Wellington County. Wellington County Historical Society.

Codes are defined as follows:
R1: Most rare or growing on only 1-3 sites.
R2: Rare and growing on 4-6 sites.
R3: Uncommon and growing on 7-10 sites.

[9] Native Status
Based on Vascan and NHIC (February 28, 2020)
Vascan: http://data.canadensys.net/vascan/search
NHIC: https://www.sdc.gov.on.ca/sites/MNRF-PublicDocs/EN/ProvincialServices/ONTARIO_SPECIES_LISTS.zip

Codes are defined as follows:
N: Native
I: Introduced

ELC Summary Sheet	Project Name: Erin Heights	Project: No: 211-04586-00	Page 1 of 1	WSP
Unit #: 1	Observers: Leanne Wallis	Date: 2021-08-24	Weather/Limitations: High of 31, sunny, light wind, no precip	

SYSTEM:	COMMUNITY CLASS:	COM. SERIES:	ECOSITE:	VEG. TYPE:
Terrestrial	Cultural			Cultural Treed Hedgerow CUH1-A

STAND DESCRIPTION:	*SOIL ANALYSIS*	COMMUNITY INCLUSION:
COMMUNITY AGE: Mid-Aged	**MEASUREMENTS TAKEN:** n_a	
	DRAINAGE:	
STANDING SNAGS: Scarce	**SOIL MOISTURE:**	
DEADFALL LOGS: Scarce	**TEXTURE:**	
BOTANICAL QUALITY: Low	**DEPTH TO MOTTLES/GLEY:**	COMPLEX/ MOSAIC:
SLOPE:	**DEPTH TO GROUNDWATER/BEDROCK:**	

TOPOGRAPHY: Rolling Upland

Height Codes: 1=>25m, 2=10m-25m, 3=2m-10m, 4=1m-2m, 5=0.5m-1m, 6=0.2m-0.5m, 7=<0.5m **Cover Codes:** 0=none, 1=0%-10%, 2=10%-25%, 3=25%-60%, 4=>60%

VEGETATION LAYER		HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (limit 10)
1	Canopy	2	4	Manitoba Maple (Acer negundo - ACERNEG), Sugar Maple (Acer saccharum - ACERSAC)
2	Sub-Canopy	3	3	Manitoba Maple (Acer negundo - ACERNEG), Sugar Maple (Acer saccharum - ACERSAC), Staghorn Sumac (Rhus typhina - RHUSTYP), European Buckthorn (Rhamnus cathartica - RHAMCAT)
3	Understorey	4	3	European Buckthorn (Rhamnus cathartica - RHAMCAT), Chokecherry (Prunus virginiana - PRUNVIV), Alternate-leaved Dogwood (Cornus alternifolia - CORNALT), Creeper sp. (Parthenocissus sp. - PART_SP)
4	Ground Layer	5	4	Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN), Climbing Nightshade (Solanum dulcamara - SOLADUL), Creeper sp. (Parthenocissus sp. - PART_SP), Eastern Tall Goldenrod (Solidago altissima var. altissima - SOLIALT)

SIZE CLASS ANALYSIS (abundance code): **S**=Scarce, **O**=Occassional, **F**=Frequent, **A**=Abundant, **D**=Dominant	<10cm DBH:	10 – 24 cm DBH:	25 – 50 cm DBH:	> 50 cm DBH:
	A	A	A	None

SPECIES INVENTORY	LAYER/ABUNDANCE 1	2	3	4
Manitoba Maple (Acer negundo - ACERNEG)	A			
Manitoba Maple (Acer negundo - ACERNEG)		A		
Staghorn Sumac (Rhus typhina - RHUSTYP)		F		
European Buckthorn (Rhamnus cathartica - RHAMCAT)			A	
Alternate-leaved Dogwood (Cornus alternifolia - CORNALT)			F	
Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN)				F
Creeper sp. (Parthenocissus sp. - PART_SP)				F
Manitoba Maple (Acer negundo - ACERNEG)				
European Buckthorn (Rhamnus cathartica - RHAMCAT)				
Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN)				
Catnip (Nepeta cataria - NEPECAT)				
Wood Avens (Geum urbanum - GEUMURB)				
Eastern White Cedar (Thuja occidentalis - THUJOCC)				
Wild Carrot (Daucus carota - DAUCCAR)				
Birch sp. (Betula sp. - BETU_SP) ornamental				

SPECIES INVENTORY	LAYER/ABUNDANCE 1	2	3	4
Sugar Maple (Acer saccharum - ACERSAC)	F			
Sugar Maple (Acer saccharum - ACERSAC)		F		
European Buckthorn (Rhamnus cathartica - RHAMCAT)		F		
Chokecherry (Prunus virginiana - PRUNVIV)			F	
Creeper sp. (Parthenocissus sp. - PART_SP)			O	
Climbing Nightshade (Solanum dulcamara - SOLADUL)				F
Eastern Tall Goldenrod (Solidago altissima var. altissima - SOLIALT)				F
Creeper sp. (Parthenocissus sp. - PART_SP)				
Riverbank Grape (Vitis riparia - VITIRIP)				
Garlic Mustard (Alliaria petiolata - ALLIPET)				
Lettuce sp. (Lactuca sp. - LACT_SP)				
Chokecherry (Prunus virginiana - PRUNVIV)				
Bull Thistle (Cirsium vulgare - CIRSVUL)				
Ground-ivy (Glechoma hederacea - GLECHED)				
Red-osier Dogwood (Cornus sericea - CORNSER)				

Pussy Willow (Salix discolor - SALIDIS)					White Elm (Ulmus americana - ULMUAME)					
Eastern Tall Goldenrod (Solidago altissima var. altissima - SOLIALT)					Orchard Grass (Dactylis glomerata - DACTGLO)					
Common Burdock (Arctium minus - ARCTMIN)					Climbing Nightshade (Solanum dulcamara - SOLADUL)					
Green Ash (Fraxinus pennsylvanica - FRAXPEN)					Common Apple (Malus pumila - MALUPUM)					
Rabbit's-foot Clover (Trifolium arvense - TRIFARV)					Common Dandelion (Taraxacum officinale - TARAOFF)					
Herb-Robert (Geranium robertianum - GERAROB)					Sugar Maple (Acer saccharum - ACERSAC)					
Alternate-leaved Dogwood (Cornus alternifolia - CORNALT)					Staghorn Sumac (Rhus typhina - RHUSTYP)					
Common Plantain (Plantago major - PLANMAJ)					Hawkweed Oxtongue (Picris hieracioides - PICRHIH)					
Calico Aster (Symphyotrichum lateriflorum - SYMPLAT)					Violet sp. (Viola sp. - VIOL_SP)					
Lamium sp					European Wood-sorrel (Oxalis stricta - OXALSTR)					
Norway Maple (Acer platanoides - ACERPLA)					Goutweed (Aegopodium podagraria - AEGOPOD)					S
Spearmint (Mentha spicata - MENTSPI)				S	Ostrich Fern (Matteuccia struthiopteris - MATTSTR)				S	
Wild Basil (Clinopodium vulgare - CLINVUL)				S	Wild Strawberry (Fragaria virginiana ssp. virginiana - FRAGVIV)					
English Plantain (Plantago lanceolata - PLANLAN)				S	Black Walnut (Juglans nigra - JUGLNIG)					S
North American Red Raspberry (Rubus idaeus ssp. strigosus - RUBUIDS)										

EVIDENCE OF DISTURBANCE:
Exotic Species,Dumping,Recreational Use,Disease/Death of Trees

WILDLIFE HABITAT OBSERVATIONS:

COMMENTS / ADDITIONAL NOTES:
Cultural hedgeow
WILDLIFE: AMGO, AMCR, MODO, AMRO

ELC Summary Sheet	Project Name: Erin Heights	Project: No: 211-04586-00	Page 1 of 1	WSP
Unit #: 2	Observers: Leanne Wallis	Date: 2021-08-24	Weather/Limitations:	

SYSTEM: Terrestrial	COMMUNITY CLASS: Forest	COM. SERIES: FOD	ECOSITE:	VEG. TYPE: FOD3-1 Dry-Fresh Poplar FOD

STAND DESCRIPTION:	*SOIL ANALYSIS*	
COMMUNITY AGE: Young to Mid-Aged	**MEASUREMENTS TAKEN:** n_a	**COMMUNITY INCLUSION:**
	DRAINAGE:	
STANDING SNAGS: Occasional	**SOIL MOISTURE:**	
DEADFALL LOGS: Occasional	**TEXTURE:**	
BOTANICAL QUALITY: Low	**DEPTH TO MOTTLES/GLEY:**	**COMPLEX/ MOSAIC:**
SLOPE:	**DEPTH TO GROUNDWATER/BEDROCK:**	

TOPOGRAPHY: Rolling Upland

Height Codes: 1=>25m, 2=10m-25m, 3=2m-10m, 4=1m-2m, 5=0.5m-1m, 6=0.2m-0.5m, 7=<0.5m **Cover Codes:** 0=none, 1=0%-10%, 2=10%-25%, 3=25%-60%, 4=>60%

VEGETATION LAYER		HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (limit 10)
1	Canopy	2	3	Trembling Aspen (Populus tremuloides - POPUTRE), White Ash (Fraxinus americana - FRAXAME), Black Cherry (Prunus serotina - PRUNSER)
2	Sub-Canopy	3	3	Manitoba Maple (Acer negundo - ACERNEG), White Ash (Fraxinus americana - FRAXAME), Trembling Aspen (Populus tremuloides - POPUTRE)
3	Understorey	5	3	Chokecherry (Prunus virginiana - PRUNVIV), North American Red Raspberry (Rubus idaeus ssp. strigosus - RUBUIDS), Creeper sp. (Parthenocissus sp. - PART_SP), Alternate-leaved Dogwood (Cornus alternifolia - CORNALT)
4	Ground Layer	6	4	Chokecherry (Prunus virginiana - PRUNVIV), Eastern Tall Goldenrod (Solidago altissima var. altissima - SOLIALT), Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN)

SIZE CLASS ANALYSIS (abundance code): **S**=Scarce, **O**=Occassional, **F**=Frequent, **A**=Abundant, **D**=Dominant	<10cm DBH: A	10 – 24 cm DBH: A	25 – 50 cm DBH: O	> 50 cm DBH: None

SPECIES INVENTORY	LAYER/ABUNDANCE 1	2	3	4
Trembling Aspen (Populus tremuloides - POPUTRE)	A			
Black Cherry (Prunus serotina - PRUNSER)	O			
White Ash (Fraxinus americana - FRAXAME)		F		
North American Red Raspberry (Rubus idaeus ssp. strigosus - RUBUIDS)			F	
Alternate-leaved Dogwood (Cornus alternifolia - CORNALT)			O	
Chokecherry (Prunus virginiana - PRUNVIV)				A
Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN)				F
Creeper sp. (Parthenocissus sp. - PART_SP)				
Wood Avens (Geum urbanum - GEUMURB)				
European Wood-sorrel (Oxalis stricta - OXALSTR)				
Common Burdock (Arctium minus - ARCTMIN)				
Eastern Prickly Gooseberry (Ribes cynosbati - RIBECYN)				
Chokecherry (Prunus virginiana - PRUNVIV)				

SPECIES INVENTORY	LAYER/ABUNDANCE 1	2	3	4
White Ash (Fraxinus americana - FRAXAME)	A			
Manitoba Maple (Acer negundo - ACERNEG)		A		
Trembling Aspen (Populus tremuloides - POPUTRE)		O		
Creeper sp. (Parthenocissus sp. - PART_SP)			F	
Chokecherry (Prunus virginiana - PRUNVIV)			A	
Eastern Tall Goldenrod (Solidago altissima var. altissima - SOLIALT)				F
White Ash (Fraxinus americana - FRAXAME)				
Common Dandelion (Taraxacum officinale - TARAOFF)				
Garlic Mustard (Alliaria petiolata - ALLIPET)				
New England Aster (Symphyotrichum novae-angliae - SYMPNOV)				
North American Red Raspberry (Rubus idaeus ssp. strigosus - RUBUIDS)				
White Elm (Ulmus americana - ULMUAME)				
Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN)				

European Buckthorn (Rhamnus cathartica - RHAMCAT)					Sugar Maple (Acer saccharum - ACERSAC)					
Alternate-leaved Dogwood (Cornus alternifolia - CORNALT)					Black Cherry (Prunus serotina - PRUNSER)					
Sensitive Fern (Onoclea sensibilis - ONOCSEN)					Common Motherwort (Leonurus cardiaca - LEONCAC)					
Orchard Grass (Dactylis glomerata - DACTGLO)					Grass-leaved Goldenrod (Euthamia graminifolia - EUTHGRA)					
Common St. John's-wort (Hypericum perforatum - HYPEPER)					Trembling Aspen (Populus tremuloides - POPUTRE) (*) hybrid, cultivar					
Common Mullein (Verbascum thapsus - VERBTHA)					Canada Horseweed (Erigeron canadensis - ERIGCAN)					
Eastern Tall Goldenrod (Solidago altissima var. altissima - SOLIALT)					Riverbank Grape (Vitis riparia - VITIRIP)					
Staghorn Sumac (Rhus typhina - RHUSTYP)					Black Walnut (Juglans nigra - JUGLNIG)					
Alternate-leaved Dogwood (Cornus alternifolia - CORNALT)					Curly Dock (Rumex crispus - RUMECRI)					
Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN)					Orchard Grass (Dactylis glomerata - DACTGLO)					
Hawkweed Oxtongue (Picris hieracioides - PICRHIH)					Wild Carrot (Daucus carota - DAUCCAR)					
European Buckthorn (Rhamnus cathartica - RHAMCAT)					Butter-and-eggs (Linaria vulgaris - LINAVUL)					
Kentucky Bluegrass (Poa pratensis ssp. pratensis - POA_PRP)					Calico Aster (Symphyotrichum lateriflorum var. lateriflorum - SYMPLAR)					
American Black Currant (Ribes americanum - RIBEAME)					European Mountain-ash (Sorbus aucuparia - SORBAUC)					
Canada Yew (Taxus canadensis - TAXUCAN) (*)					Jack-in-the-pulpit (Arisaema triphyllum - ARISTRT)					
Northeastern Lady Fern (Athyrium filix-femina var. angustum - ATHYFIA)					Spinulose Wood Fern (Dryopteris carthusiana - DRYOCAR)					
Herb-Robert (Geranium robertianum - GERAROB)					Apple sp. (Malus sp. - MALU_SP)					
Sugar Maple (Acer saccharum - ACERSAC)					Autumn Olive (Elaeagnus umbellata - ELAEUMB)					
Red-osier Dogwood (Cornus sericea - CORNSER)					Black Maple (Acer nigrum - ACERNIG)					
Cottony Willow (Salix eriocephala - SALIERI)					Common Hemp-nettle (Galeopsis tetrahit - GALETET)					
Herb-Robert (Geranium robertianum - GERAROB)					Wild Strawberry (Fragaria virginiana ssp. virginiana - FRAGVIV)					
Calico Aster (Symphyotrichum lateriflorum var. lateriflorum - SYMPLAR)					White Spruce (Picea glauca - PICEGLA)					
Balsam Poplar (Populus balsamifera - POPUBAB)										

EVIDENCE OF DISTURBANCE:
Exotic Species,Trails,Dumping,Recreational Use,Noise,Disease/Death of Trees

WILDLIFE HABITAT OBSERVATIONS:

COMMENTS / ADDITIONAL NOTES:
Edge above swamps close to Erin heights rd
WILDLIFE: AMCR, BLJA, RESQ, WBNU, GRSQ, EACH
EAB

Black Ash in adjacent swamp at 573912E 4846879N

ELC Summary Sheet	Project Name: Erin Heights	Project: No: 211-04586-00	Page 1 of 1	WSP
Unit #: 3	Observers: Leanne Wallis	Date: 2021-08-24	Weather/Limitations:	

SYSTEM: Terrestrial	COMMUNITY CLASS: Forest	COM. SERIES: FOM	ECOSITE: FOM4	VEG. TYPE: FOM4-2 D-F Cedar Poplar FOM

STAND DESCRIPTION:	*SOIL ANALYSIS*	COMMUNITY INCLUSION:
COMMUNITY AGE: Mid-Aged	**MEASUREMENTS TAKEN:** n_a	
	DRAINAGE:	
STANDING SNAGS: Scarce	**SOIL MOISTURE:**	
DEADFALL LOGS: Scarce	**TEXTURE:**	
BOTANICAL QUALITY: Low	**DEPTH TO MOTTLES/GLEY:**	**COMPLEX/ MOSAIC:**
SLOPE:	**DEPTH TO GROUNDWATER/BEDROCK:**	

TOPOGRAPHY: Rolling Upland

Height Codes: 1=>25m, 2=10m-25m, 3=2m-10m, 4=1m-2m, 5=0.5m-1m, 6=0.2m-0.5m, 7=<0.5m **Cover Codes:** 0=none, 1=0%-10%, 2=10%-25%, 3=25%-60%, 4=>60%

VEGETATION LAYER		HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (limit 10)
1	Canopy	2	3	Trembling Aspen (Populus tremuloides - POPUTRE), Paper Birch (Betula papyrifera - BETUPAP), Black Cherry (Prunus serotina - PRUNSER)
2	Sub-Canopy	3	4	Eastern White Cedar (Thuja occidentalis - THUJOCC), European Buckthorn (Rhamnus cathartica - RHAMCAT)
3	Understorey	4	2	Eastern White Cedar (Thuja occidentalis - THUJOCC), Alternate-leaved Dogwood (Cornus alternifolia - CORNALT), Chokecherry (Prunus virginiana - PRUNVIV)
4	Ground Layer	6	3	European Buckthorn (Rhamnus cathartica - RHAMCAT), Creeper sp. (Parthenocissus sp. - PART_SP), Eastern White Cedar (Thuja occidentalis - THUJOCC)

SIZE CLASS ANALYSIS (abundance code): **S**=Scarce, **O**=Occassional, **F**=Frequent, **A**=Abundant, **D**=Dominant	<10cm DBH:	10 – 24 cm DBH:	25 – 50 cm DBH:	> 50 cm DBH:
	A	A	O	

SPECIES INVENTORY	LAYER/ABUNDANCE 1	2	3	4
Trembling Aspen (Populus tremuloides - POPUTRE)	F			
Black Cherry (Prunus serotina - PRUNSER)	O			
European Buckthorn (Rhamnus cathartica - RHAMCAT)		O		
Alternate-leaved Dogwood (Cornus alternifolia - CORNALT)			O	
European Buckthorn (Rhamnus cathartica - RHAMCAT)				F
Eastern White Cedar (Thuja occidentalis - THUJOCC)				F
White Willow (Salix alba - SALIALB) (*)				
Field Horsetail (Equisetum arvense - EQUIARV)				
Sugar Maple (Acer saccharum - ACERSAC)				
Chokecherry (Prunus virginiana - PRUNVIV)				
European Buckthorn (Rhamnus cathartica - RHAMCAT)				
Long-stalked Sedge (Carex pedunculata - CAREPED)				
Alternate-leaved Dogwood (Cornus alternifolia - CORNALT)				
Balsam Fir (Abies balsamea - ABIEBAL)				
Drooping Woodland Sedge (Carex arctata - CAREARC)				

SPECIES INVENTORY	LAYER/ABUNDANCE 1	2	3	4
Paper Birch (Betula papyrifera - BETUPAP)	F			
Eastern White Cedar (Thuja occidentalis - THUJOCC)		D		
Eastern White Cedar (Thuja occidentalis - THUJOCC)			F	
Chokecherry (Prunus virginiana - PRUNVIV)			O	
Creeper sp. (Parthenocissus sp. - PART_SP)				F
Eastern White Cedar (Thuja occidentalis - THUJOCC)				
Trembling Aspen (Populus tremuloides - POPUTRE) (*) hybrid, cultivar				
Black Cherry (Prunus serotina - PRUNSER)				
White Ash (Fraxinus americana - FRAXAME)				
Riverbank Grape (Vitis riparia - VITIRIP)				
European Lily-of-the-valley (Convallaria majalis - CONVMAJ)				
Wild Lily-of-the-valley (Maianthemum canadense ssp. canadense - MAIACAN)				
Chokecherry (Prunus virginiana - PRUNVIV)				
Cranberry Viburnum (Viburnum opulus ssp. opulus - VIBUOPU)				
Baneberry sp. (Actaea sp. - ACTA_SP)				

Trembling Aspen (Populus tremuloides - POPUTRE)					Wild Sarsaparilla (Aralia nudicaulis - ARALNUD)					
Jack-in-the-pulpit (Arisaema triphyllum - ARISTRT)					Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN)					
European Mountain-ash (Sorbus aucuparia - SORBAUC)					Violet sp. (Viola sp. - VIOL_SP)					
Hawkweed sp. (Hieracium sp. - HIER_SP)					Paper Birch (Betula papyrifera - BETUPAP)					
Sensitive Fern (Onoclea sensibilis - ONOCSEN)					Coltsfoot (Tussilago farfara - TUSSFAR) (*) drainage channel					
Bitter Dock (Rumex obtusifolius - RUMEOBT) (*) Drainage channel					Garden Bird's-foot Trefoil (Lotus corniculatus - LOTUCOR) (*) trail					
Path Rush (Juncus tenuis - JUNCTEN) (*) trail					Lance-leaved Self-heal (Prunella vulgaris ssp. lanceolata - PRUNVUL) (*) trail					
Common Plantain (Plantago major - PLANMAJ) (*) trail					Wild Carrot (Daucus carota - DAUCCAR) (*) trail					
Ladies'-tresses sp. (Spiranthes sp. - SPIR_SP) (*) trail, about 10, starting to flower, photo					Red Clover (Trifolium pratense - TRIFPRA) (*) trail					
English Plantain (Plantago lanceolata - PLANLAN) (*) trail					Common Yarrow (Achillea millefolium - ACHIMIL) (*) trail					
Oxeye Daisy (Leucanthemum vulgare - LEUCVUL) (*)trail					Fleabane sp. (Erigeron sp. - ERIG_SP) (*) trail					
Spotted Knapweed (Centaurea stoebe - CENTSTO) (*) trail					Black-eyed Susan (Rudbeckia hirta - RUDBHIR) (*) trail					
Calico Aster (Symphyotrichum lateriflorum var. lateriflorum - SYMPLAR) (*) trail					Northern Rough-stemmed Goldenrod (Solidago rugosa ssp. rugosa - SOLIRUR)					
Gray-stemmed Goldenrod (Solidago nemoralis ssp. nemoralis - SOLINEN) (*) trail					Scots Pine (Pinus sylvestris - PINUSYL)					
Common Buttercup (Ranunculus acris - RANUACR) (*) trail					Canada Bluegrass (Poa compressa - POA_COM) (*) trail					
Common Scouring-rush (Equisetum hyemale - EQUIHYM) trail					Poverty Oatgrass (Danthonia spicata - DANTSPI) (*) trail					
Yellow Sedge (Carex flava - CAREFLV) (*) trail					Manitoba Maple (Acer negundo - ACERNEG)					
Bracken Fern (Pteridium aquilinum - PTERAQU)					Eastern Ninebark (Physocarpus opulifolius - PHYSOPU)					
Bloodroot (Sanguinaria canadensis - SANGCAN)										

EVIDENCE OF DISTURBANCE:
Exotic Species,Trails,Dumping,Recreational Use,Noise,Disease/Death of Trees

WILDLIFE HABITAT OBSERVATIONS:

COMMENTS / ADDITIONAL NOTES:
Cedar hardwood forest
WILDLIFE: AMRO, RACC scat, RBNU, BCCH, GYMO egg sacs

ELC Summary Sheet	Project Name: Erin Heights	Project: No: 211-04586-00	Page 1 of 1	WSP
Unit #: 4	Observers: Leanne Wallis	Date: 2021-08-24	Weather/Limitations:	

SYSTEM:	COMMUNITY CLASS:	COM. SERIES:	ECOSITE:	VEG. TYPE:
Wetland	Swamp	SWM	SWM4	SWM4-1 White Cedar Hardwood Organic Mixed Swamp

STAND DESCRIPTION:	*SOIL ANALYSIS*	COMMUNITY INCLUSION:
COMMUNITY AGE: Mid-Aged	**MEASUREMENTS TAKEN:** n_a	
	DRAINAGE:	
STANDING SNAGS: Scarce	**SOIL MOISTURE:**	
DEADFALL LOGS: Abundant	**TEXTURE:**	
BOTANICAL QUALITY: Medium	**DEPTH TO MOTTLES/GLEY:**	**COMPLEX/ MOSAIC:**
SLOPE:	**DEPTH TO GROUNDWATER/BEDROCK:**	

TOPOGRAPHY: Rolling Upland

Height Codes: 1=>25m, 2=10m-25m, 3=2m-10m, 4=1m-2m, 5=0.5m-1m, 6=0.2m-0.5m, 7=<0.5m **Cover Codes:** 0=none, 1=0%-10%, 2=10%-25%, 3=25%-60%, 4=>60%

VEGETATION LAYER		HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (limit 10)
1	Canopy	2	3	Yellow Birch (Betula alleghaniensis - BETUALL), Eastern White Cedar (Thuja occidentalis - THUJOCC), Eastern Hemlock (Tsuga canadensis - TSUGCAN), Balsam Fir (Abies balsamea - ABIEBAL)
2	Sub-Canopy	3	4	Eastern White Cedar (Thuja occidentalis - THUJOCC), Mountain Maple (Acer spicatum - ACERSPI)
3	Understorey	4	1	Eastern White Cedar (Thuja occidentalis - THUJOCC), Mountain Maple (Acer spicatum - ACERSPI), Balsam Fir (Abies balsamea - ABIEBAL)
4	Ground Layer	6	1	Spinulose Wood Fern (Dryopteris carthusiana - DRYOCAR), Sensitive Fern (Onoclea sensibilis - ONOCSEN), Broad-leaved Helleborine (Epipactis helleborine - EPIPHEL), Climbing Nightshade (Solanum dulcamara - SOLADUL)

SIZE CLASS ANALYSIS (abundance code): **S**=Scarce, **O**=Occassional, **F**=Frequent, **A**=Abundant, **D**=Dominant	<10cm DBH:	10 – 24 cm DBH:	25 – 50 cm DBH:	> 50 cm DBH:
	A	A	A	None

SPECIES INVENTORY	LAYER/ABUNDANCE 1	2	3	4
Yellow Birch (Betula alleghaniensis - BETUALL)	A			
Balsam Fir (Abies balsamea - ABIEBAL)	S			
Eastern White Cedar (Thuja occidentalis - THUJOCC)		A		
Eastern White Cedar (Thuja occidentalis - THUJOCC)			F	
Balsam Fir (Abies balsamea - ABIEBAL)			O	
Sensitive Fern (Onoclea sensibilis - ONOCSEN)				O
Climbing Nightshade (Solanum dulcamara - SOLADUL)				S
Yellow Birch (Betula alleghaniensis - BETUALL)				
Sensitive Fern (Onoclea sensibilis - ONOCSEN)				
Spinulose Wood Fern (Dryopteris carthusiana - DRYOCAR)				
Chokecherry (Prunus virginiana - PRUNVIV)				
Jack-in-the-pulpit (Arisaema triphyllum - ARISTRT)				
Broad-leaved Helleborine (Epipactis helleborine - EPIPHEL)				
European Buckthorn (Rhamnus cathartica - RHAMCAT)				

SPECIES INVENTORY	LAYER/ABUNDANCE 1	2	3	4
Eastern Hemlock (Tsuga canadensis - TSUGCAN)	O			
Eastern White Cedar (Thuja occidentalis - THUJOCC)	F			
Mountain Maple (Acer spicatum - ACERSPI)		F		
Mountain Maple (Acer spicatum - ACERSPI)			O	
Spinulose Wood Fern (Dryopteris carthusiana - DRYOCAR)				F
Broad-leaved Helleborine (Epipactis helleborine - EPIPHEL)				S
Eastern White Cedar (Thuja occidentalis - THUJOCC)				
Mountain Maple (Acer spicatum - ACERSPI)				
Balsam Fir (Abies balsamea - ABIEBAL)				
Green Ash (Fraxinus pennsylvanica - FRAXPEN)				
Crested Wood Fern (Dryopteris cristata - DRYOCRI)				
Climbing Nightshade (Solanum dulcamara - SOLADUL)				
Northeastern Lady Fern (Athyrium filix-femina var. angustum - ATHYFIA)				
Fowl Mannagrass (Glyceria striata - GLYCSTR)				

Bulblet Bladder Fern (Cystopteris bulbifera - CYSTBUL)					Black Cherry (Prunus serotina - PRUNSER)					
Trembling Aspen (Populus tremuloides - POPUTRE)					Cranberry Viburnum (Viburnum opulus ssp. opulus - VIBUOPU)					
Eastern Hemlock (Tsuga canadensis - TSUGCAN)					Common Oak Fern (Gymnocarpium dryopteris - GYMNDRY)					
Marginal Wood Fern (Dryopteris marginalis - DRYOMAR)					Jack-in-the-pulpit (Arisaema triphyllum - ARISTRT)					
Trillium sp. (Trillium sp. - TRIL_SP)					Paper Birch (Betula papyrifera - BETUPAP)					
Mad-dog Skullcap (Scutellaria lateriflora - SCUTLAT)					Riverbank Grape (Vitis riparia - VITIRIP)					
Wild Lily-of-the-valley (Maianthemum canadense ssp. canadense - MAIACAN)					Field Horsetail (Equisetum arvense - EQUIARV)					
Wild Sarsaparilla (Aralia nudicaulis - ARALNUD)					Long-stalked Sedge (Carex pedunculata - CAREPED)					
Coltsfoot (Tussilago farfara - TUSSFAR)					Shinleaf (Pyrola elliptica - PYROELL)					
Cinnamon Fern (Osmundastrum cinnamomeum - OSMUCINN)					Northern Rough-stemmed Goldenrod (Solidago rugosa ssp. rugosa - SOLIRUR)					
Small Forget-me-not (Myosotis laxa - MYOSLAX) (*) drainage channel					Watercress sp. (Nasturtium sp. - NAST_SP) (*) drainage channel					
Spotted Jewelweed (Impatiens capensis - IMPACAP) (*) drainage channel					Willowherb sp. (Epilobium sp. - EPIL_SP) (*) drainage channel					
Purple-stemmed Aster (Symphyotrichum puniceum - SYMPPUP) (*) drainage channel										

EVIDENCE OF DISTURBANCE:
Exotic Species,Recreational Use,Noise,Disease/Death of Trees

WILDLIFE HABITAT OBSERVATIONS:

COMMENTS / ADDITIONAL NOTES:
Swamp
WILDLIFE: RBNU, RESQ, BLJA, BCCH, AMTO (one toadlet), GTFR one calling

ELC Summary Sheet	Project Name: Erin Heights	Project: No: 211-04586-00	Page 1 of 1	WSP
Unit #: 5	Observers: Leanne Wallis	Date: 2021-08-24	Weather/Limitations:	

SYSTEM:	COMMUNITY CLASS:	COM. SERIES:	ECOSITE:	VEG. TYPE:
Wetland	Swamp	SWM	SWM	**Poplar Conifer Mineral Mixed Swamp SWM3-2**

STAND DESCRIPTION:	*SOIL ANALYSIS*	**COMMUNITY INCLUSION:**
COMMUNITY AGE: Mid-Aged	**MEASUREMENTS TAKEN:** n_a	
	DRAINAGE:	
STANDING SNAGS: Occasional	**SOIL MOISTURE:**	
DEADFALL LOGS: Occasional	**TEXTURE:** MINERAL	
BOTANICAL QUALITY: Medium	**DEPTH TO MOTTLES/GLEY:**	**COMPLEX/ MOSAIC:**
SLOPE:	**DEPTH TO GROUNDWATER/BEDROCK:**	

TOPOGRAPHY: Rolling Upland

Height Codes: 1=>25m, 2=10m-25m, 3=2m-10m, 4=1m-2m, 5=0.5m-1m, 6=0.2m-0.5m, 7=<0.5m **Cover Codes:** 0=none, 1=0%-10%, 2=10%-25%, 3=25%-60%, 4=>60%

VEGETATION LAYER		HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (limit 10)
1	Canopy	2	3	Trembling Aspen (Populus tremuloides - POPUTRE), Balsam Poplar (Populus balsamifera - POPUBAB), White Spruce (Picea glauca - PICEGLA)
2	Sub-Canopy	3	4	Eastern White Cedar (Thuja occidentalis - THUJOCC), Manitoba Maple (Acer negundo - ACERNEG), Trembling Aspen (Populus tremuloides - POPUTRE), Willow sp. (Salix sp. - SALI_SP)
3	Understorey	4	3	Eastern Tall Goldenrod (Solidago altissima var. altissima - SOLIALT), Alternate-leaved Dogwood (Cornus alternifolia - CORNALT), Riverbank Grape (Vitis riparia - VITIRIP), Virginia Clematis (Clematis virginiana - CLEMVIR)
4	Ground Layer	6	4	Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN), Sensitive Fern (Onoclea sensibilis - ONOCSEN), Eastern White Cedar (Thuja occidentalis - THUJOCC), Bulblet Bladder Fern (Cystopteris bulbifera - CYSTBUL)

SIZE CLASS ANALYSIS (abundance code): **S**=Scarce, **O**=Occassional, **F**=Frequent, **A**=Abundant, **D**=Dominant	<10cm DBH:	10 – 24 cm DBH:	25 – 50 cm DBH:	> 50 cm DBH:
	A	A	O	

SPECIES INVENTORY	LAYER/ABUNDANCE 1	2	3	4
Trembling Aspen (Populus tremuloides - POPUTRE)	F			
White Spruce (Picea glauca - PICEGLA)	O			
Manitoba Maple (Acer negundo - ACERNEG)		F		
Willow sp. (Salix sp. - SALI_SP)		F		
Alternate-leaved Dogwood (Cornus alternifolia - CORNALT)			O	
Virginia Clematis (Clematis virginiana - CLEMVIR)			O	
Sensitive Fern (Onoclea sensibilis - ONOCSEN)				F
Bulblet Bladder Fern (Cystopteris bulbifera - CYSTBUL)				O
Black Cherry (Prunus serotina - PRUNSER)				
Yellow Birch (Betula alleghaniensis - BETUALL)				
Red-osier Dogwood (Cornus sericea - CORNSER)				
Trembling Aspen (Populus tremuloides - POPUTRE)				
North American Red Raspberry (Rubus idaeus ssp. strigosus - RUBUIDS)				
Wild Cucumber (Echinocystis lobata - ECHILOB)				

SPECIES INVENTORY	LAYER/ABUNDANCE 1	2	3	4
Balsam Poplar (Populus balsamifera - POPUBAB)	F			
Eastern White Cedar (Thuja occidentalis - THUJOCC)		A		
Trembling Aspen (Populus tremuloides - POPUTRE)		F		
Eastern Tall Goldenrod (Solidago altissima var. altissima - SOLIALT)			F	
Riverbank Grape (Vitis riparia - VITIRIP)			O	
Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN)				F
Eastern White Cedar (Thuja occidentalis - THUJOCC)				O
Eastern White Cedar (Thuja occidentalis - THUJOCC)				
Manitoba Maple (Acer negundo - ACERNEG)				
Green Ash (Fraxinus pennsylvanica - FRAXPEN)				
Alternate-leaved Dogwood (Cornus alternifolia - CORNALT)				
Balsam Poplar (Populus balsamifera - POPUBAB)				
Virginia Clematis (Clematis virginiana - CLEMVIR)				
Creeper sp. (Parthenocissus sp. - PART_SP)				

Riverbank Grape (Vitis riparia - VITIRIP)					Ostrich Fern (Matteuccia struthiopteris - MATTSTR)					
Chokecherry (Prunus virginiana - PRUNVIV)					Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN)					
Common Burdock (Arctium minus - ARCTMIN)					Tall Meadow-rue (Thalictrum pubescens - THALPUB)					
Canada Wood Nettle (Laportea canadensis - LAPOCAN)					Spotted Jewelweed (Impatiens capensis - IMPACAP)					
White Elm (Ulmus americana - ULMUAME)					Bulblet Bladder Fern (Cystopteris bulbifera - CYSTBUL)					
Ground-ivy (Glechoma hederacea - GLECHED)					Coltsfoot (Tussilago farfara - TUSSFAR)					
Common Dandelion (Taraxacum officinale - TARAOFF)					European Wood-sorrel (Oxalis stricta - OXALSTR)					
Sensitive Fern (Onoclea sensibilis - ONOCSEN)					Herb-Robert (Geranium robertianum - GERAROB)					
Broad-leaved Helleborine (Epipactis helleborine - EPIPHEL)					American Black Currant (Ribes americanum - RIBEAME)					
Bitter Dock (Rumex obtusifolius - RUMEOBT)					Bitter Wintercress (Barbarea vulgaris - BARBVUL)					
Climbing Nightshade (Solanum dulcamara - SOLADUL)					Common Hemp-nettle (Galeopsis tetrahit - GALETET)					
Common Elderberry (Sambucus canadensis - SAMBCAN)					Northern Swamp Buttercup (Ranunculus hispidus var. caricetorum - RANUHIC)					
Eastern Tall Goldenrod (Solidago altissima var. altissima - SOLIALT)					Cottony Willow (Salix eriocephala - SALIERI)					
Basswood (Tilia americana - TILIAME)					Field Horsetail (Equisetum arvense - EQUIARV)					
Black Ash (Fraxinus nigra - FRAXNIG) (*) At least 10 at 573436E, 4846920N					Balsam Fir (Abies balsamea - ABIEBAL)					
Calico Aster (Symphyotrichum lateriflorum var. lateriflorum - SYMPLAR)					Field Sow-thistle (Sonchus arvensis ssp. arvensis - SONCARA)					
Bull Thistle (Cirsium vulgare - CIRSVUL)					Mountain Maple (Acer spicatum - ACERSPI)					
Spotted Joe Pye Weed (Eutrochium maculatum var. maculatum - EUTRMAC)					White Spruce (Picea glauca - PICEGLA)					
Panicled Aster (Symphyotrichum lanceolatum ssp. lanceolatum - SYMPLAL)					Willow sp. (Salix sp. - SALI_SP)					
Tamarack (Larix laricina - LARILAR)					Great Blue Lobelia (Lobelia siphilitica - LOBESIP)					
Canada Anemone (Anemonastrum canadense - ANEMCAN)					Common Boneset (Eupatorium perfoliatum - EUPAPER)					
Common Timothy (Phleum pratense - PHLEPRA)					White Turtlehead (Chelone glabra - CHELGLA)					
Water Speedwell (Veronica anagallis-aquatica - VEROANA)					Arrowhead sp. (Sagittaria sp. - SAGI_SP)					
Burreed sp. (Sparganium sp. - SPAR_SP)					Soft Rush (Juncus effusus - JUNCEFF)					
Grass-leaved Goldenrod (Euthamia graminifolia - EUTHGRA)					Kentucky Bluegrass (Poa pratensis ssp. pratensis - POA_PRP)					
Purple Willow (Salix purpurea - SALIPUR)					Speckled Alder (Alnus incana - ALNUINC)					
Broad-leaved Cattail (Typha latifolia - TYPHLAT)					Reed Canarygrass (Phalaris arundinacea var. arundinacea - PHALARU)					
Tatarian Honeysuckle (Lonicera tatarica - LONITAT)					Fowl Mannagrass (Glyceria striata - GLYCSTR)					
Fringed Yellow Loosestrife (Lysimachia ciliata - LYSICIL)										

EVIDENCE OF DISTURBANCE:
Exotic Species,Trails,Dumping,Recreational Use,Noise,Disease/Death of Trees,Flooding

WILDLIFE HABITAT OBSERVATIONS:

COMMENTS / ADDITIONAL NOTES:
Riparian
WILDLIFE: AMCR, AMTO, CLSU, CAWH

ELC Summary Sheet	Project Name: Erin Heights	Project: No: 211-04586-00	Page 1 of 1	WSP
Unit #: 6	Observers: Leanne Wallis	Date: 2021-08-24	Weather/Limitations:	

SYSTEM:	COMMUNITY CLASS:	COM. SERIES:	ECOSITE:	VEG. TYPE:
Terrestrial	Forest	FOM	FOM6	FOM6-1 Fresh-Moist Sugar Maple - Hemlock Mixed Forest Type

STAND DESCRIPTION:	*SOIL ANALYSIS*	COMMUNITY INCLUSION:
COMMUNITY AGE: Mature	**MEASUREMENTS TAKEN:** n_a	
	DRAINAGE:	
STANDING SNAGS: Scarce	**SOIL MOISTURE:**	
DEADFALL LOGS: Abundant	**TEXTURE:**	
BOTANICAL QUALITY: Medium	**DEPTH TO MOTTLES/GLEY:**	**COMPLEX/ MOSAIC:**
SLOPE:	**DEPTH TO GROUNDWATER/BEDROCK:**	

TOPOGRAPHY: Rolling Upland

Height Codes: 1=>25m, 2=10m-25m, 3=2m-10m, 4=1m-2m, 5=0.5m-1m, 6=0.2m-0.5m, 7=<0.5m **Cover Codes:** 0=none, 1=0%-10%, 2=10%-25%, 3=25%-60%, 4=>60%

VEGETATION LAYER		HT	CVR	SPECIES IN ORDER OF DECREASING DOMINANCE (limit 10)
1	Canopy	2	4	Sugar Maple (Acer saccharum - ACERSAC), Eastern Hemlock (Tsuga canadensis - TSUGCAN), Black Cherry (Prunus serotina - PRUNSER), Red Maple (Acer rubrum - ACERRUB)
2	Sub-Canopy	3	2	Sugar Maple (Acer saccharum - ACERSAC), Eastern Hemlock (Tsuga canadensis - TSUGCAN), American Beech (Fagus grandifolia - FAGUGRA)
3	Understorey	4	3	Alternate-leaved Dogwood (Cornus alternifolia - CORNALT), Chokecherry (Prunus virginiana - PRUNVIV), White Ash (Fraxinus americana - FRAXAME), Eastern White Cedar (Thuja occidentalis - THUJOCC)
4	Ground Layer	5	4	Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN), Wild Sarsaparilla (Aralia nudicaulis - ARALNUD), Northeastern Lady Fern (Athyrium filix-femina var. angustum - ATHYFIA), Giant Blue Cohosh (Caulophyllum giganteum - CAULGIG)

SIZE CLASS ANALYSIS (abundance code): **S**=Scarce, **O**=Occassional, **F**=Frequent, **A**=Abundant, **D**=Dominant	<10cm DBH:	10 – 24 cm DBH:	25 – 50 cm DBH:	> 50 cm DBH:
	A	A	A	

SPECIES INVENTORY	LAYER/ABUNDANCE 1	2	3	4
Sugar Maple (Acer saccharum - ACERSAC)	D			
Black Cherry (Prunus serotina - PRUNSER)	O			
Sugar Maple (Acer saccharum - ACERSAC)		O		
American Beech (Fagus grandifolia - FAGUGRA)		S		
White Ash (Fraxinus americana - FRAXAME)			O	
Eastern White Cedar (Thuja occidentalis - THUJOCC)			S	
Wild Sarsaparilla (Aralia nudicaulis - ARALNUD)				F
Giant Blue Cohosh (Caulophyllum giganteum - CAULGIG)				F
Eastern Hemlock (Tsuga canadensis - TSUGCAN)				
Paper Birch (Betula papyrifera - BETUPAP)				
Alternate-leaved Dogwood (Cornus alternifolia - CORNALT)				
Chokecherry (Prunus virginiana - PRUNVIV)				
Sensitive Fern (Onoclea sensibilis - ONOCSEN)				
Large False Solomon's-seal (Maianthemum racemosum - MAIARAR)				
Spinulose Wood Fern (Dryopteris carthusiana - DRYOCAR)				

SPECIES INVENTORY	LAYER/ABUNDANCE 1	2	3	4
Eastern Hemlock (Tsuga canadensis - TSUGCAN)	F			
Red Maple (Acer rubrum - ACERRUB)	O			
Eastern Hemlock (Tsuga canadensis - TSUGCAN)		O		
Alternate-leaved Dogwood (Cornus alternifolia - CORNALT)			F	
Chokecherry (Prunus virginiana - PRUNVIV)			F	
Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN)				F
Northeastern Lady Fern (Athyrium filix-femina var. angustum - ATHYFIA)				F
Sugar Maple (Acer saccharum - ACERSAC)				
Black Cherry (Prunus serotina - PRUNSER)				
Yellow Birch (Betula alleghaniensis - BETUALL)				
White Ash (Fraxinus americana - FRAXAME)				
Long-stalked Sedge (Carex pedunculata - CAREPED)				
Broad-leaved Helleborine (Epipactis helleborine - EPIPHEL)				
Giant Blue Cohosh (Caulophyllum giganteum - CAULGIG)				
European Wood-sorrel (Oxalis stricta - OXALSTR)				

Drooping Woodland Sedge (Carex arctata - CAREARC)					Eastern White Cedar (Thuja occidentalis - THUJOCC)					
Trillium sp. (Trillium sp. - TRIL_SP)					American Beech (Fagus grandifolia - FAGUGRA)					
Climbing Nightshade (Solanum dulcamara - SOLADUL)					European Buckthorn (Rhamnus cathartica - RHAMCAT)					
Jack-in-the-pulpit (Arisaema triphyllum - ARISTRT)					Hairy Solomon's Seal (Polygonatum pubescens - POLYPUB)					
Fowl Mannagrass (Glyceria striata - GLYCSTR)					Basswood (Tilia americana - TILIAME)					
Chokecherry (Prunus virginiana - PRUNVIV)					Spotted Jewelweed (Impatiens capensis - IMPACAP)					
Common Plantain (Plantago major - PLANMAJ)					Garlic Mustard (Alliaria petiolata - ALLIPET)					
Ostrich Fern (Matteuccia struthiopteris - MATTSTR)					Broad-leaved Enchanter's Nightshade (Circaea canadensis - CIRCCAN)					
Devil's Beggarticks (Bidens frondosa - BIDEFRO)					Indian Tobacco (Lobelia inflata - LOBEINF)					
Wild Lily-of-the-valley (Maianthemum canadense ssp. canadense - MAIACAN)					Yellow Clintonia (Clintonia borealis - CLINBOR)					
Drooping Woodland Sedge (Carex arctata - CAREARC)					Northern Rough-stemmed Goldenrod (Solidago rugosa ssp. rugosa - SOLIRUR)					
White Ash (Fraxinus americana - FRAXAME)					Calico Aster (Symphyotrichum lateriflorum var. lateriflorum - SYMPLAR)					
Hooked Buttercup (Ranunculus recurvatus - RANUREC)					Creeper sp. (Parthenocissus sp. - PART_SP)					
Common Dandelion (Taraxacum officinale - TARAOFF)					Wild Sarsaparilla (Aralia nudicaulis - ARALNUD)					
Bulblet Bladder Fern (Cystopteris bulbifera - CYSTBUL)					Red Maple (Acer rubrum - ACERRUB)					
Northeastern Lady Fern (Athyrium filix-femina var. angustum - ATHYFIA)					Balsam Fir (Abies balsamea - ABIEBAL)					
Canada Yew (Taxus canadensis - TAXUCAN)					Common Speedwell (Veronica officinalis - VEROOFF)					
Violet sp. (Viola sp. - VIOL_SP)					Field Horsetail (Equisetum arvense - EQUIARV)					

EVIDENCE OF DISTURBANCE:
Exotic Species,Trails,Recreational Use,Disease/Death of Trees

WILDLIFE HABITAT OBSERVATIONS:

COMMENTS / ADDITIONAL NOTES:
Mid aged to mature
WILDLIFE: SPPE, GRSQ, RESQ

APPENDIX D

Breeding Bird Survey Results

Appendix D - Breeding Bird Survey Results

Common Name	Scientific Name	GRANK[1]	SRANK[2]	SARO (ESA) Status[3]	COSEWIC Status[4]	SARA Status[5]	Schedule[5]	CVC (2010)[6]	Habitat Use[7]	Area Sensitive Birds - Ecoregion 6E[8]	Protected Under MBCA	WSU 1 - Subject Property						WSU 2 - PSW and Forest						Overall Study Area		Comments
												Round 1 - June 11, 2021		Round 2 - June 25, 2021		Overall		Round 1 - June 11, 2021		Round 2 - June 25, 2021		Overall				
												Number	Highest BE	Number	Highest BE	Highest Abundance	Highest Breeding Status	Number	Highest BE	Number	Highest BE	Highest Abundance	Highest Breeding Status	Highest Abundance	Highest Breeding Status	
American Crow	*Corvus brachyrhynchos*	G5	S5B					4	E			3	H	7	T	7	Probable	3	H	3	T	3	Probable	10	Probable	
American Goldfinch	*Spinus tristis*	G5	S5B					4	E		x	4	S/H	1	T	4	Probable							4	Probable	
American Redstart	*Setophaga ruticilla*	G5	S5B					3	I		x							1	S/H	1	T	1	Probable	1	Probable	
American Robin	*Turdus migratorius*	G5	S5B					4	E		x	7	S/H	10	FY	10	Confirmed	1	S/H	1	T	1	Probable	11	Confirmed	
Baltimore Oriole	*Icterus galbula*	G5	S4B					3	E		x			1	S/H	1	Possible							1	Possible	
Barn Swallow	*Hirundo rustica*	G5	S4B	THR	THR	THR	1	1			x	2	X			2	Observed							2	Observed	
Black-and-white Warbler	*Mniotilta varia*	G5	S5B					3	I		x													1	Osberved	Recorded during site visit on May 4, 2021
Black-capped Chickadee	*Poecile atricapillus*	G5	S5					4	I/E		x	3	AE			3	Confirmed	1	S/H	5	T	5	Probable	8	Probable	
Blue Jay	*Cyanocitta cristata*	G5	S5					4	I/E			1	S/H	2	T	2	Probable	2	S/H			2	Possible	4	Possible	
Brown Thrasher	*Toxostoma rufum*	G5	S4B					2	E		x													1	Observed	Recorded during site visit on May 4, 2021
Canada Goose	*Branta canadensis*	G5	S5					4	M/F		x														Observed	Flyover observed on May 4, 2021
Cedar Waxwing	*Bombycilla cedrorum*	G5	S5B					4	E		x	2	H	2	T	2	Probable							2	Probable	
Chipping Sparrow	*Spizella passerina*	G5	S5B					4	E		x	4	S/H	4	T	4	Probable							4	Probable	
Common Grackle	*Quiscalus quiscula*	G5	S5B					4	E		x	6	H	9	T	9	Probable			1	H	1	Possible	10	Possible	
Common Yellowthroat	*Geothlypis trichas*	G5	S5B					4	I/E		x							2	S/H	1	T	2	Probable	2	Probable	
Downy Woodpecker	*Picoides pubescens*	G5	S5					4	I/E		x			1	H	1	Possible							1	Possible	
Eastern Kingbird	*Tyrannus tyrannus*	G5	S4B					3	E		x	2	H	4	T	4	Probable							4	Probable	
European Starling	*Sturnus vulgaris*	G5	SNA					5	E			5	H	20	FY	20	Confirmed							20	Confirmed	
Gray Catbird	*Dumetella carolinensis*	G5	S4B					3	I/E		x									1	S/H	1	Possible	1	Possible	
Great Crested Flycatcher	*Myiarchus crinitus*	G5	S4B					3	I/E		x			2	P	2	Probable	1	S/H	1	T	1	Probable	3	Probable	
Green Heron	*Butorides virescens*	G5	S4B					2	S/B, M/F		x							1	H			1	Possible	1	Possible	
Hairy Woodpecker	*Picoides villosus*	G5	S5					3	I		x			1	H	1	Possible							1	Possible	
House Finch	*Carpodacus mexicanus*	G5	SNA					5			x	1	S/H			1	Possible							1	Possible	
House Wren	*Troglodytes aedon*	G5	S5B					4	E		x	1	S/H	1	T	1	Probable	1	S/H	1	T	1	Probable	2	Probable	
Indigo Bunting	*Passerina cyanea*	G5	S4B					3	E		x							2	S/H	1	T	2	Probable	2	Probable	
Mallard	*Anas platyrhynchos*	G5	S5					4	S/B, M/F		x	2	X			2	Observed							2	Observed	
Mourning Dove	*Zenaida macroura*	G5	S5					4	E		x	1	H	3	T/P	3	Probable							3	Probable	
Mourning Warbler	*Geothlypis philadelphia*	G5	S4B					3	E		x							1	S/H			1	Possible	1	Possible	
Northern Cardinal	*Cardinalis cardinalis*	G5	S5					4	I/E		x	2	S/H			2	Possible			1	S/H	1	Possible	3	Possible	
Northern Flicker	*Colaptes auratus*	G5	S4B					3	I/E		x	2	H	1	T	2	Probable			1	H	1	Possible	3	Possible	
Red-bellied Woodpecker	*Melanerpes carolinus*	G5	S4					2	I/E		x							1	S/H	2	T/P	2	Probable	2	Probable	
Red-breasted Nuthatch	*Sitta canadensis*	G5	S5					3	I	X	x							1	S/H	1	T	1	Probable	1	Probable	
Red-eyed Vireo	*Vireo olivaceus*	G5	S5B					4	I/E		x	1	S/H			1	Possible	2	S/H	2	T	2	Probable	3	Probable	
Red-winged Blackbird	*Agelaius phoeniceus*	G5	S4					4	E					9	H	9	Possible							9	Possible	
Song Sparrow	*Melospiza melodia*	G5	S5B					4	E		x	3	S/H	2	T	3	Probable	1	S/H	2	T	2	Probable	5	Probable	
Warbling Vireo	*Vireo gilvus*	G5	S5B					4	E		x									1	S/H	1	Possible	1	Possible	
White-breasted Nuthatch	*Sitta carolinensis*	G5	S5					3	I		x													1	Possible	Recorded during site visit on May 4, 2021
Winter Wren	*Troglodytes hiemalis*	G5	S5B					3	I	X	x							1	S/H	1	T	1	Probable	1	Probable	
Yellow Warbler	*Setophaga petechia*	G5	S5B					4	E		x							1	S/H			1	Possible	1	Possible	
Totals												19		18		24		17		18		22		39		

WILDLIFE SPECIES LIST LEGEND

[1]G-Rank (global)
Global ranks are assigned by a consensus of the network of Conservation Data Centres (CDCs), scientific experts, and the Nature Conservancy to designate a rarity rank based on the range-wide status of a species, subspecies, or variety.

G1 Extremely rare - usually 5 or fewer occurrences in the overall range or very few remaining individuals; or because of some factor(s) making it especially vulnerable to Extinction.
G2 Very rare - usually between 5 and 20 occurrences in the overall range or with many individuals in fewer occurrences; or because of some factor(s) making it vulnerable to Extinction.
G3 Rare to uncommon - usually between 20 and 100 occurrences; may have fewer occurrences, but with a large number of individuals in some populations; may be susceptible to large-scale disturbances.
G4 Common - usually more than 100 occurrences; usually not susceptible to immediate threats.
G5 Very common - demonstrably secure under present conditions.

[2]S-Rank (provincial)
Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

S1 Critically Imperiled - Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.
S2 Imperiled - Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.
S3 Vulnerable - Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 Secure - Common, widespread, and abundant in the nation or state/province.
S#S# Range Rank - A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
SAN Non-breeding accidental.
SE Exotic - not believed to be a native component of Ontario's fauna.
SZN Non-breeding migrants/vagrants.
SZB Breeding migrants/vagrants.

[3]SARO (Species at Risk in Ontario) Status
https://www.ontario.ca/page/species-risk-ontario

The provincial review process is implemented by the Committee on the Status of Species at Risk in Ontario (COSSARO). COSSARO is an independent advisory panel to the Ontario Ministry of Environment, Conservation and Parks (MECP) that assesses the status of species at risk of extinction.

MECP Conservation Status Ranks
EXT Extinct - A species that no longer exists anywhere in the world.

EXP Extirpated - A species that lives somewhere in the world, lived at one time in the wild in Ontario, but no longer lives in the wild in Ontario.
END Endangered - A species that is facing imminent Extinction or extirpation.
THR Threatened - A species that is likely to become Endangered if steps are not taken to address factors threatening to lead to its Extinction or extirpation.
SC Special Concern – A species that may become Threatened or Endangered because of a combination of biological characteristics and identified threats.

[4]COSEWIC (Committee on the Status of Endangered Wildlife in Canada)

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) is an independent advisory panel to the Minister of Environment and Climate Change Canada that meets twice a year to assess the status of wildlife species at risk of extinction.
https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife.html

COSEWIC Conservation Status Ranks
EXT Extinct - A species that no longer exists.
EXP Extirpated - A species no longer existing in the wild in Canada, but occurring elsewhere.
END Endangered - A species facing imminent extirpation or Extinction.
THR Threatened - A species likely to become Endangered if limiting factors are not reversed.
SC Special Concern (formerly vulnerable) - A species that may become a Threatened or an Endangered species because of a combination of biological characteristics and identified threats.
NAR Not At Risk - A species that has been evaluated and found to be not at risk of Extinction given the current circumstances.
DD Data Deficient (formerly Indeterminate) - Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of Extinction.

[5]SARA (Species at Risk Act) Status and Schedule
https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry.html

The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

EXT Extinct - A wildlife species that no longer exists.
EXP Extirpated **-** A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.
END Endangered - A wildlife species that is facing imminent extirpation or Extinction.
THR Threatened - A wildlife species that is likely to become Endangered if nothing is done to reverse the factors leading to its extirpation or Extinction.
SC Special Concern - A wildlife species that may become a Threatened or an Endangered species because of a combination of biological characteristics and identified threats.

Schedule 1: is the official list of species that are classified as Extirpated, Endangered, Threatened and Special Concern.
Schedule 2: species listed in Schedule 2 are species that had been designated as Endangered or Threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3: species listed in Schedule 3 are species that had been designated as Special Concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are Extirpated, Endangered, Threatened and Special Concern, the prohibitions do not apply to species of Special Concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

[6] Regional Status

Credit Valley Conservation (2010)
Credit Valley Conservation Species of Conservation Concern Project (June 2010). These rankings are part of a draft watershed list current as of June 2010. This list is a dynamic document and subject to periodic review.

CVC. 2010. Personal Communication June 4, 2010 with C.Cox: Natural Heritage Ecologist – Credit Valley Conservation Species of Conservation Concern Project.

TIER	TITLE	CRITERIA
1	Species of Conservation Concern	Federal/provincial legislation, COSEWIC and COSSARO designations, NHIC S1-S3? ranks, local rarity (anticipated)*
2	Species of Interest	Local lists, CVC data, professional judgment
3	Species of Urban Interest	Mississauga NAS Ranks, CVC data, professional judgment
4	Secure Species	CVC data, professional judgment
5	Non-Native & Non-Native Hybrid Species	Not native to Ontario and/or the Credit River watershed but found planted or naturalized.

* An anticipated outcome is for locally rare species to be updated to Tier 1 status and for CVC to develop policy to protect these species.

Tier 1—Species of Conservation Concern
Tier 1 species, Species of Conservation Concern, are either currently protected under Canada's Species At Risk Act (SARA) or Ontario's Endangered Species Act (ESA), have been designated a species at risk by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) or by the Committee on the Status of Species at Risk on Ontario (COSSARO), or have been assigned at Subnational Rank (S-rank) of S1-S3? by the Natural Heritage Information Centre (NHIC). Tier 1 species are generally characterized by low abundance, low population density, specialized habitat requirements, and/or a narrow tolerance for survival.

Tier 2—Species of Interest
Tier 2 species are those that have not been identified as Species of Conservation Concern but may be at risk from extirpation from the Credit River Watershed. These species appear to be exhibiting population declines, are naturally rare, are known or suspected to be sensitive to habitat loss and the effects of urbanization, or are species for which data is lacking. CVC aims to track these species to ensure that through policy and stewardship they receive the protection they require to prevent extirpation.

Tier 3—Species of Urban Interest
Species that have been designated Tier 3 are being tracked in urban areas. Urban areas are considered to be those within 2 km of built up cities or towns, including Mississauga, Brampton,

Georgetown, Acton, Erin and Orangeville. Generally these species are secure in rural areas but have shown declines in or sensitivities to areas that are anthropogenically influenced or disturbed. CVC is interested in tracking these species to guide management decisions and address species declines in urban areas.

Tier 4—Secure Species
Tier 4 species are currently considered to be secure in the Credit River watershed. CVC continues to record these species and their relative abundance; however their locations and exact numbers are not recorded.

Tier 5—Non-Native and Non-Native Hybrid Species
Tier 5 species are those that are not native either to Ontario or to the Credit River watershed. Not all Tier 5 species are considered invasive and harmful; CVC has prioritized invasive species for management and developed a list of the Top 16 invasive species within the watershed. Data collected on these Top 16 invasive species will help guide management decisions to protect native floral and faunal biodiversity and reduce the ecological and economic impacts of invasive species.

X=Present

[7] Habitat Use
I=interior species, I/E=interior edge species, E=edge species (Freemark and Collins, 1989); M/F=Marsh/Fen, S/B=Treed Swamp/Bog. Interior bird species require habitat which is often found 100m from the forest edge while Interior/Edge species are found within both interior and edge habitat. Often Interior and Interior/Edge are more sensitive to urban encroachment as they require these large, relatively undisturbed forest habitats to support viable populations. The increasing urbanization of rural areas often results in increased parasitism and predation as well as disturbance from human recreational activities (e.g. illegal bike trails, dumping and pets.) (Freemark, K. and Collins, B. 1989*. Landscape ecology of birds breeding in temperate forest fragments*. – In: Hagan III, J. M. and Johnston, D. W. (eds), Ecology and conservation of neotropical migrant landbirds. Smithsonian Inst. Press, pp. 443–454)

[8] MNR Area Sensitive Species
Area Sensitivity is defined as species requiring large areas of suitable habitat in order to sustain population numbers

From: Ministry of Natural Resources and Forestry. 2015. Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E. January, 2015. Regional Operations Division, Southern Region Resources Section. 39pp.

Ontario Breeding Bird Atlas - Breeding Evidence Codes

OBSERVED
X Species observed in its breeding season (no breeding evidence).

POSSIBLE
H Species observed in its breeding season in suitable nesting habitat.
S Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season.

PROBABLE
P Pair observed in suitable nesting habitat in nesting season.
T Permanent territory presumed through registration of territorial behaviour (song, etc.) on at least two days, a week or more apart, at the same place.

D Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation.
V Visiting probable nest site
A Agitated behaviour or anxiety calls of an adult.
B Brood Patch on adult female or cloacal protuberance on adult male.
N Nest-building or excavation of nest hole.

CONFIRMED

DD Distraction display or injury feigning.
NU Used nest or egg shells found (occupied or laid within the period of the survey).
FY Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight.
AE Adult leaving or entering nest sites in circumstances indicating occupied nest.
FS Adult carrying fecal sac.
CF Adult carrying food for young.
NE Nest containing eggs.
NY Nest with young seen or heard.

wsp

BREEDING BIRD SURVEY DATASHEET

Page 1 of 1

Project Name: Empire Erin Heights Project Number: 211-04586-00

Date: June 11, 2021 Observers: S. Leslie Photo #s: ✓

Wildlife Survey Unit #(s): ✓ Station #(s): ✓ Plate #: ✓ ELC Unit: ✓

Road Chainage Start: ✓ Road Chainage End: ✓ Direction from Road: ✓

UTM Zone: ✓ UTM Easting: ✓ UTM Northing: ✓ Accuracy(m): ✓ Datum: ✓

SURVEY DETAILS

Start Time:	End Time:	Total Survey Time:	Start Temp (C):	End Temp (C):	Start Wind Code:	End Wind Code:	Start Sky Code:	End Sky Code:
6:00	8:30	150 min	17	20	1	1	1	0

Beaufort Wind Scale

0 = calm, smoke rises vertically (0-2km/hr) 1 = Light air movement, smoke drifts (3-5), 2 = Slight breeze, wind felt on face; leaves rustle (6-11)
3= Gentle breeze, leaves & twigs in constant motion (12-19) 4= Moderate breeze, small branches moving, raises dust & loose paper (20-30)
5= Fresh breeze, small trees begin to sway (31-39) 6= Strong breeze, large branches in motion (40-50)

Beaufort Sky Codes

0 = clear (no cloud cover) 1 = partly cloudy (scattered or broken) or variable 2 = cloudy or overcast 3 = sandstorm, duststorm or blowing snow 4 = fog, smoke, thick dust, or haze
5 = drizzle or light rain 6 = rain 7 = snow or snow/rain mix 8 = showers 9 = thunderstorms

Wandering Transect OR **Point Count** (circle one)

Time: ✓ Unit #: Golf Course

Point Count # (if applicable): ✓

Point Count UTM (if applicable): ✓

SP. CODE	No.	BE	Location / Habitat	Comments
NOFL	2	H		
NOCA	2	S/H		
REVI	1	S/H		
EUST	3	H		
CHSP	4	S/H		
AMCR	3	H		
AMGO	4	S/H		
COGR	5	H		
AMRO	11	S/H		
HOWR	1	S/H		
CEDW	2	H		
SOSP	3	S/H		
HOFI	1	S/H		
EAKI	2	H		
MALL	2	X		Flyover
BARS	2	X		Flyover
BLJA	1	S/H		
MODO	1	H		
BCCH	3	AE		

Incidental Wildlife Observations:

RESQ 5 GRSQ 1 EACO 1

Wandering Transect OR **Point Count** (circle one)

Time: ✓ Unit #: Forest / Swamp

Point Count # (if applicable): ✓

Point Count UTM (if applicable): ✓

SP. CODE	No.	BE	Location / Habitat	Comments
HOWR	2	S/H		
COYE	2	S/H		
AMRE	1	S/H		
RBWO	1	S/H		
INBU	2	S/H		
RBNU	1	S/H		
AMRO	1	S/H		
GRHE	1	H		
SOSP	1	S/H		
BLJA	2	S/H		
MOWA	1	S/H		
BCCH	1	S/H		
GCFL	1	S/H		
WIWR	1	S/H		
REVI	2	S/H		
YWAR	1	S/H		
AMCR	3	H		

Additional Comments:

- Some potential for bats in GC trees
- no nests on any buildings.

BREEDING BIRD SURVEY DATASHEET

Page 1 of 1

Project Name: Empire Erin Heights Project Number: 211-04586-00

Date: June 25, 2021 Observers: S. Leslie Photo #s: /

Wildlife Survey Unit #(s): — Station #(s): / Plate #: / ELC Unit: /

Road Chainage Start: / Road Chainage End: / Direction from Road: /

UTM Zone: / UTM Easting: / UTM Northing: / Accuracy(m): / Datum: /

SURVEY DETAILS

Start Time:	End Time:	Total Survey Time:	Start Temp (C):	End Temp (C):	Start Wind Code:	End Wind Code:	Start Sky Code:	End Sky Code:
6:10	8:40	150 min	20	20	1	1	2	2

Beaufort Wind Scale

0 = calm, smoke rises vertically (0-2km/hr) 1 = Light air movement, smoke drifts (3-5), 2 = Slight breeze, wind felt on face; leaves rustle (6-11)
3= Gentle breeze, leaves & twigs in constant motion (12-19) 4= Moderate breeze, small branches moving, raises dust & loose paper (20-30)
5= Fresh breeze, small trees begin to sway (31-39) 6= Strong breeze, large branches in motion (40-50)

Beaufort Sky Codes

0 = clear (no cloud cover) 1 = partly cloudy (scattered or broken) or variable 2 = cloudy or overcast 3 = sandstorm, duststorm or blowing snow 4 = fog, smoke, thick dust, or haze
5 = drizzle or light rain 6 = rain 7 = snow or snow/rain mix 8 = showers 9 = thunderstorms

~~Wandering Transect~~ OR **Point Count** (circle one)

Time: _____ **Unit #:** Golf Course

Point Count # (if applicable): _____

Point Count UTM (if applicable): _____

SP. CODE	No.	BE	Location / Habitat	Comments
CHSP	2	S/H		
EUST	2	FY		
AMRO	1	FY		
AMCR	1	H		
MODO	2	P		
GCFL	2	P		
CEDW	2	S/H		
HOWR	1	S/H		
COGR	1	H		
SOSP	2	S/H		
AMGO	1	S/H		
EAKI	2	S/H		
BLJA	2	S/H		
RWBL	1	H		
HAWO	1	H		
BAOR	1	S/H		
DOWO	1	H		
NOFL	1	H		

Incidental Wildlife Observations:

N/A

~~Wandering Transect~~ OR **Point Count** (circle one)

Time: _____ **Unit #:** Forest / Swamp

Point Count # (if applicable): _____

Point Count UTM (if applicable): _____

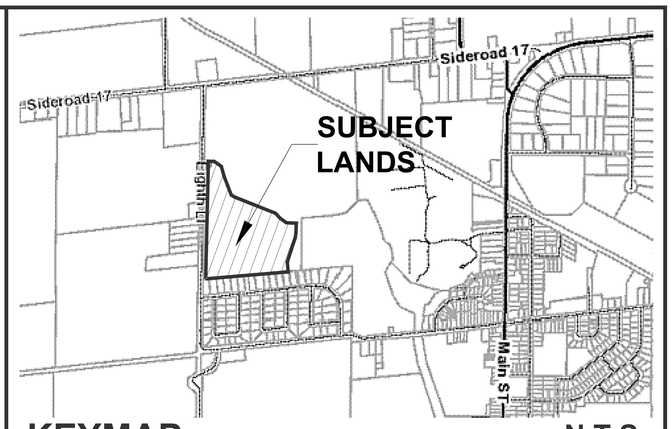
SP. CODE	No.	BE	Location / Habitat	Comments
GCFL	1	S/H		
GRCA	1	S/H		
AMRE	1	H		
SOSP	2	S/H		
RBWO	2	P		
BCCH	2	S/H		
COGR	1	H		
WAVI	1	S/H		
REVI	2	S/H		
INBU	1	S/H		
AMCR	2	H		
COYE	1	S/H		
AMRO	1	H		
NOCA	1	S/H		
NOFL	1	H		
RBNU	1	S/H		
HOWR	1	S/H		
WIWR	1	S/H		

Additional Comments:

N/A

APPENDIX E

Draft Plan of Subdivision



ADDITIONAL INFORMATION

Required Under Section 51(17)
Of The Planning Act R.S.O. 1990 c.P.13

(a) SHOWN ON DRAFT PLAN
(b) SHOWN ON DRAFT AND KEY PLANS
(c) SHOWN ON KEY PLAN
(d) LAND TO BE USED IN ACCORDANCE WITH LAND USE SCHEDULE
(e) SHOWN ON DRAFT PLAN
(f) SHOWN ON DRAFT PLAN
(g) SHOWN ON DRAFT AND KEY PLANS
(h) MUNICIPAL PIPED WATER TO BE PROVIDED
(i) SOIL IS SANDY SILT AND CLAYEY SILT
(j) SHOWN ON DRAFT PLAN
(k) ALL MUNICIPAL SERVICES TO BE PROVIDED
(l) SHOWN ON DRAFT PLAN

SCHEDULE OF LAND USE

	Proposed Land Use	Reference	Area (Ha.)
1)	Residential Singles 11.6m	Blocks 21,24,26,28	2.622
2)	Residential Singles 10.1m	Blocks 11,17,18,19,23,25	1.682
3)	Residential Singles 8.2m	Blocks 4,7,8,10,14,15,20,22,27	2.059
4)	Rear Lane Residential Singles 8.2m	Block 2	0.202
5)	Street Townhouses 6.1m	Blocks 5,6,9,12,13,16	1.339
6)	Rear Lane Street Townhouses 6.1m	Blocks 1,3	0.375
7)	Stormwater Management	Block 29	0.770
8)	Park	Block 30	0.691
9)	Open Space	Blocks 31,32,33	0.589
10)	Roads		3.530
	Total Site Area		**13.859**

Proposed Summary Yield	
Unit Mix	**Units**
Residential Singles 11.6m	58
Residential Singles 10.1m	51
Residential Singles 8.2 m	78
Rear Lane Residential Singles 8.2 m	10
Street Townhouses 6.1 m	66
Rear Lane Street Townhouses 5.0m	25
Total Dwelling Units	**288**

No.	REVISION	DATE
3		
2		
1		

REVISIONS

OWNER'S CERTIFICATE

WE, BEING THE REGISTERED OWNER OF THE SUBJECT LANDS HEREBY AUTHORIZE ARMSTRONG PLANNING and PROJECT MANAGEMENT TO PREPARE AND SUBMIT A DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

SIGNED _____ DATE _____

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE SUBJECT LANDS AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN ON THIS PLAN.

SIGNED _____ DATE _____

S. GOONEWARDENA, O.L.S.
R-PE SURVEYING LTD.
643 CHRISLEA ROAD, SUITE 7
WOODBRIDGE, ONTARIO L4L 8A3 TEL. (416)-635-5000

DRAFT PLAN OF SUBDIVISION

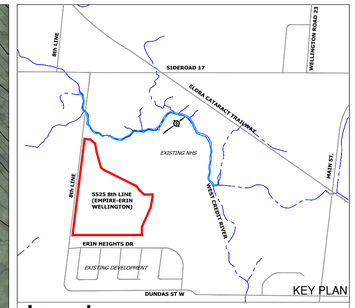
PART OF LOT 19,
REGISTRAR'S COMPILED PLAN 686
(FORMERLY VILLAGE OF ERIN)
TOWN OF ERIN
COUNTY OF WELLINGTON

armstrong
planning | project management

		SCALE 1:750
DESIGN	DRAWN	PROJECT No. 21.2842.00
APPROVED	DATE February 7, 2022	DRAWING No. 1

APPENDIX F

Engineering Drawings



Legend:

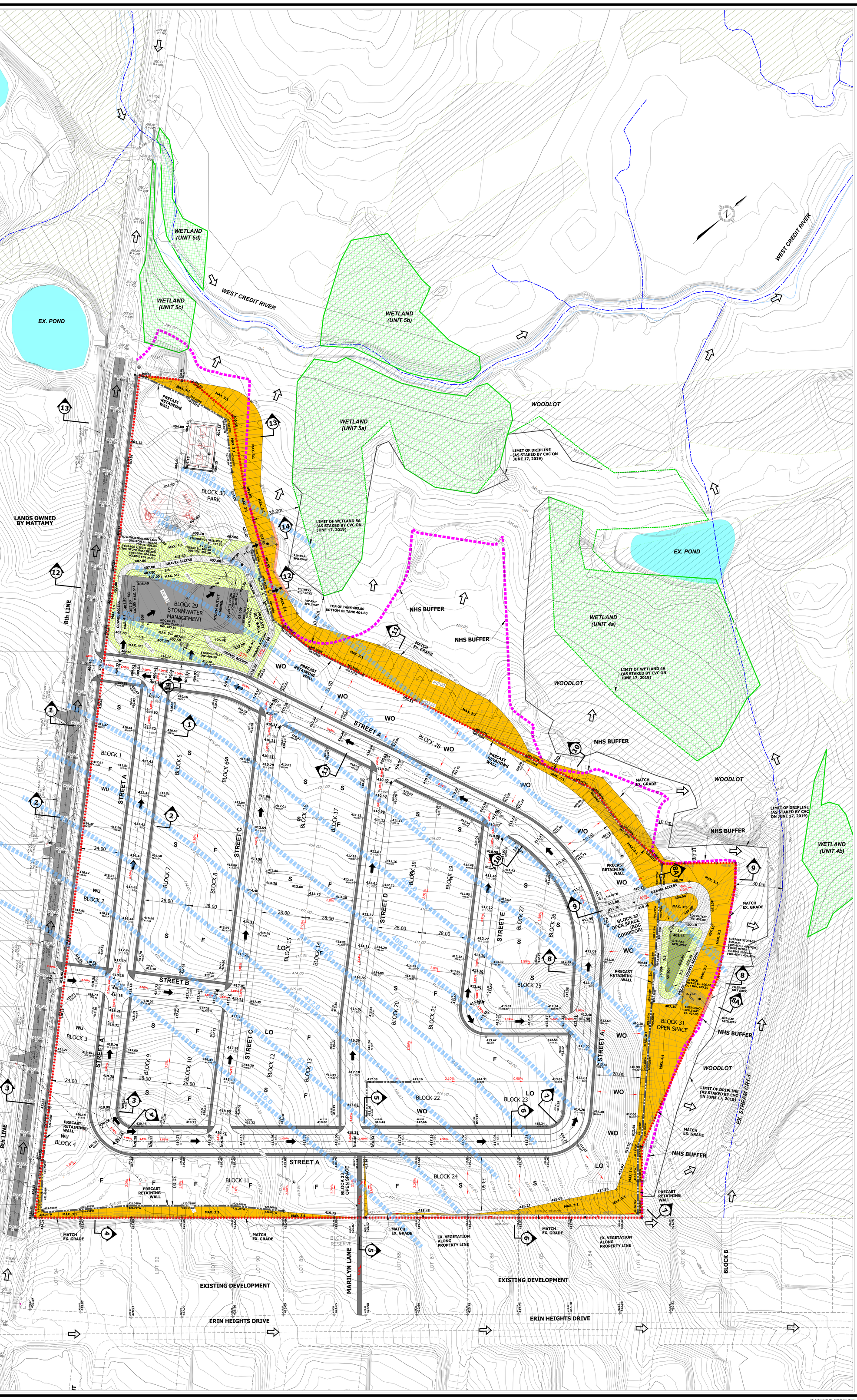
- Property Boundary
- Existing Watercourse
- 414.00 — Existing Contour Elevation
- Existing Overland Flow
- Existing Wetland
- Pre-Development Drainage Area Boundary to Wetland
- A=2.16 ha — Drainage Area in hectares

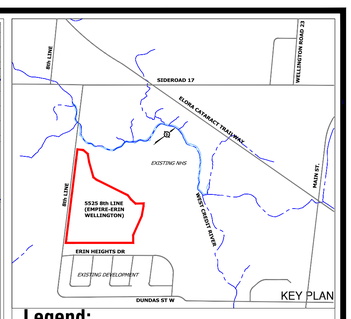
URBANTECH

Functional Servicing Report
5525 8th Line
(Empire- Erin, Wellington)

PRE-DEVELOPMENT DRAINAGE PLAN

PROJECT No.:	DATE:	SCALE:	DRAWING NO.:
21-684	Mar. 2022	1:1250	1.2





Legend:

- SUBJECT LANDS
- EXISTING CONTOUR ELEVATION
- EXISTING ELEVATION
- EXISTING OVERLAND FLOW DIRECTION
- EXISTING WETLAND
- EXISTING WOODLAND
- EXISTING POND
- NHS BUFFER
- PROPOSED ELEVATION
- PROPOSED OVERLAND FLOW DIRECTION
- INTERPRETED GROUNDWATER ELEVATION CONTOUR
- PROPOSED 3:1 GRADE TRANSITION AND RESTORATION AREA
- PROPOSED RETAINING WALL
- SWM POND BLOCK RESTORATION AREA
- UNDERGROUND STORAGE TANK OR STONE INFILTRATION TRENCH
- PROPOSED GRAVEL ACCESS
- FILTREXX SILT SOXX
- RIP-RAP SPILLWAY
- F FRONT DRAINING LOT
- S SPLIT DRAINING LOT
- LO LOOK OUT CONDITION
- WO WALK OUT CONDITION
- WU FRONT WALK UP CONDITION

NOTES:

1. 8th LINE TO BE URBANIZED BY EMPIRE AND MATTAMY UP TO DUNDAS STREET TO THE TOWN SATISFACTION. DETAILS TO BE FURTHER COORDINATED WITH THE TOWN.
2. CVC PERMISSION WILL BE REQUIRED FOR PROPOSED GRADING AND RESTORATION WITHIN THE NHS BUFFER.
3. REFER TO DRAWINGS 2.2C TO 2.2D FOR GRADING CROSS SECTIONS 1-1 TO 13-13.
4. REFER TO DRAWINGS 5.1 AND 5.2 FOR SWM POND BLOCK DETAILS AND CROSS SECTIONS.

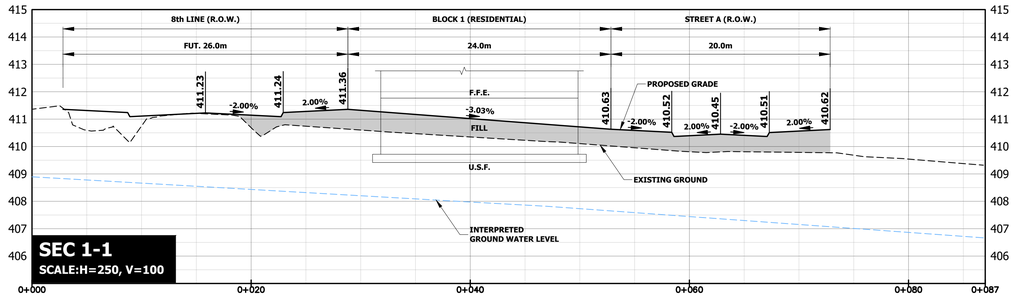
URBANTECH

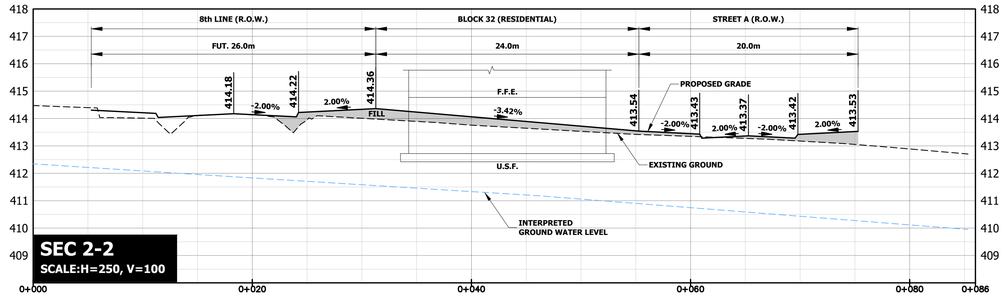
Functional Servicing Report
5525 8th Line
(Empire- Erin, Wellington)

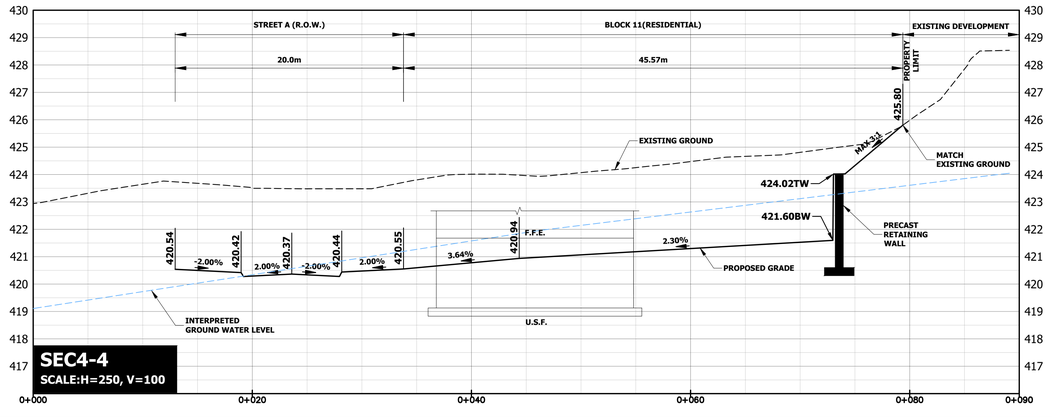
PRELIMINARY GRADING PLAN

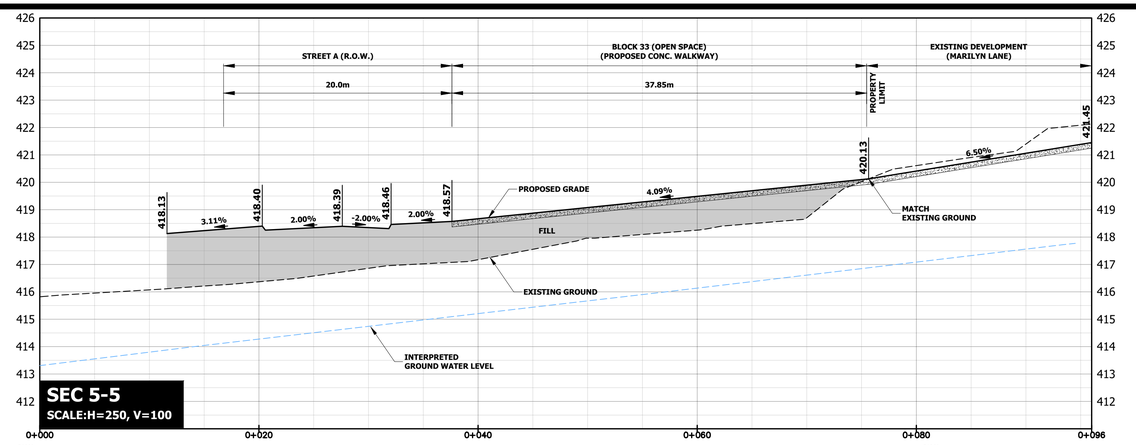
PROJECT No.:	DATE:	SCALE:	DRAWING NO.:
21-684	Mar. 2022	1:750	**2.2B**

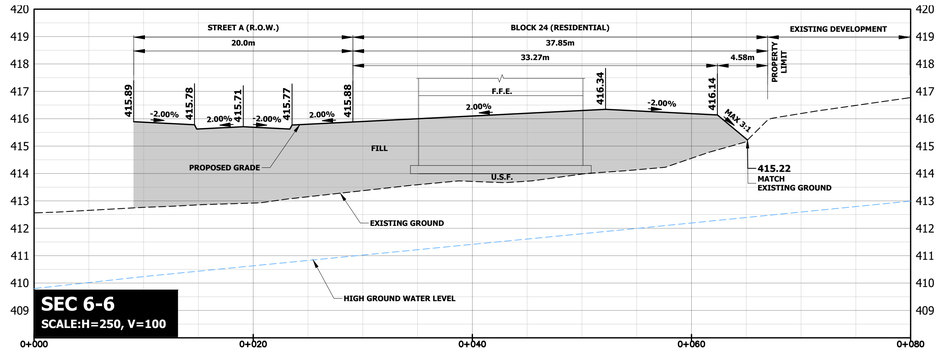
File: P:\Projects\21-684 - 5525 8th Line (Empire- Erin, Wellington)\Reports\Functional Servicing Report\Drawings & Figures\DWG 2.2B - Grading Plan.dwg - Revised by <d2tEC> : Mon, Feb 14 2022 - 2:16pm

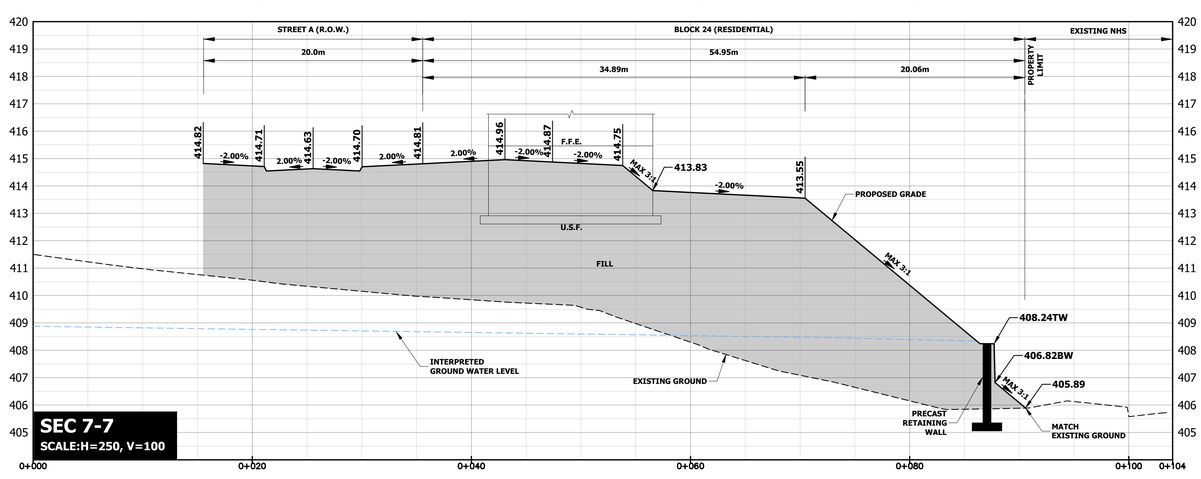












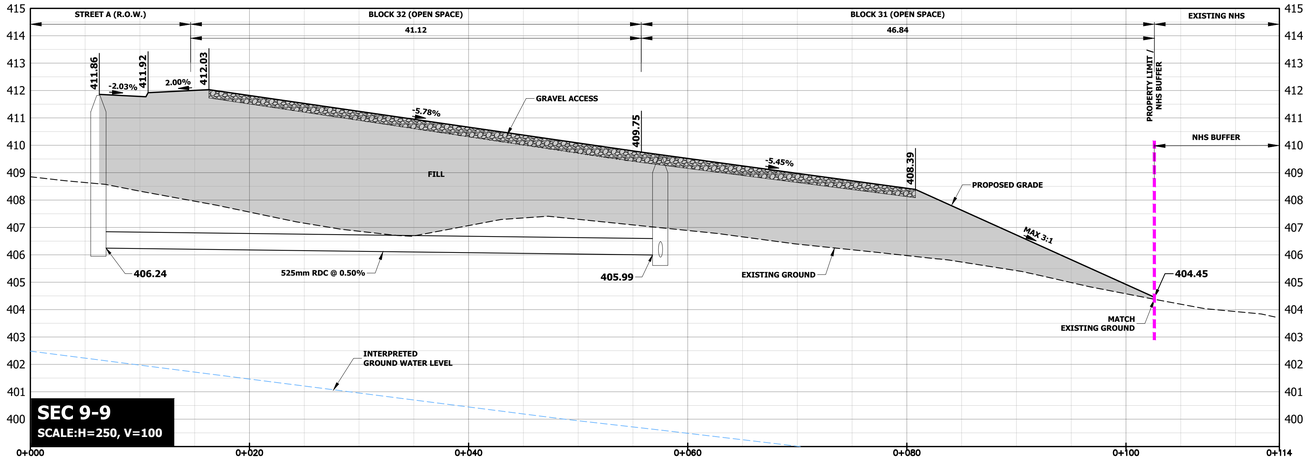
NOTE:
FOR SECTION LOCATIONS PLEASE REFER TO GRADING PLAN DRAWING 2.2B.

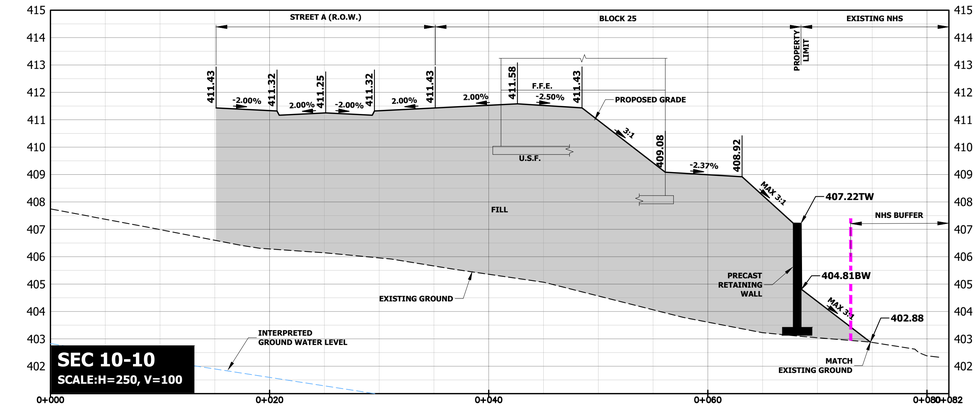
URBANTECH

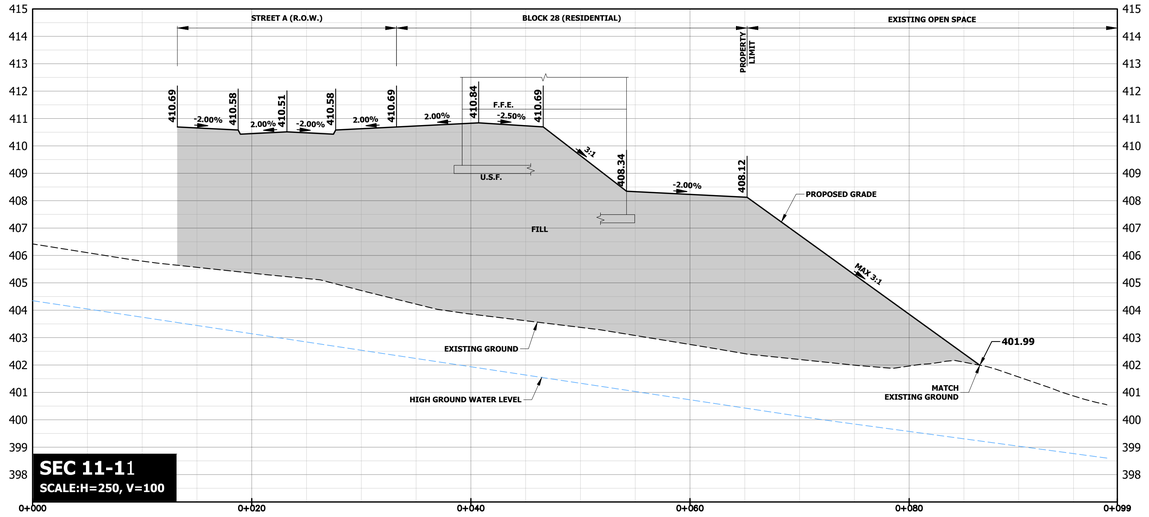
Functional Servicing Report
5525 8th Line
(Empire- Erin, Wellington)

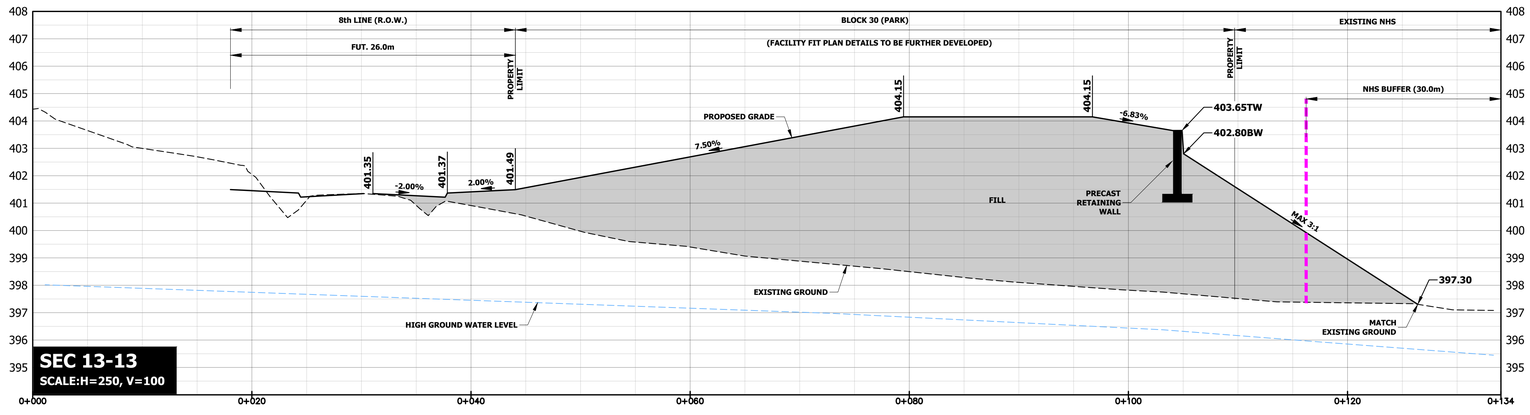
PRELIMINARY GRADING PLAN
CROSS SECTIONS 1-1 to 7-7

PROJECT No.:	DATE:	SCALE:	DRAWING NO.:
21-684	Mar. 2022	AS SHOWN	**2.2C**









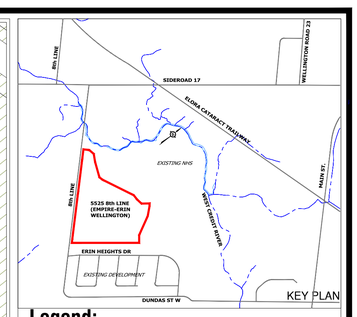
NOTE:
FOR SECTION LOCATIONS PLEASE REFER TO GRADING PLAN DRAWING 2.2B.

URBANTECH

Functional Servicing Report
5525 8th Line
(Empire- Erin, Wellington)

PRELIMINARY GRADING PLAN
CROSS SECTIONS 9-10-11-13

PROJECT No.:	DATE:	SCALE:	DRAWING NO.:
21-684	Mar. 2022	AS SHOWN	**2.2D**



Legend:

- SUBJECT LANDS
- SUBJECT LANDS EXISTING CONTOUR ELEVATION
- EXISTING OVERLAND FLOW DIRECTION
- EXISTING WETLAND
- EXISTING WOODLAND
- EXISTING POND
- NHS BUFFER
- PROPOSED OVERLAND FLOW DIRECTION
- PROPOSED 3:1 GRADE TRANSITION AND RESTORATION AREA
- SWM POND BLOCK RESTORATION AREA
- UNDERGROUND STORAGE TANK OR STONE INFILTRATION TRENCH
- MINOR SYSTEM DRAINAGE BOUNDARY (TO STORMWATER MANAGEMENT POND)
- 1.26 / 0.60 — DRAINAGE AREA (ha) / RUNOFF COEFFICIENT
- 0.50ha / 0.90 — ROOF DRAIN COLLECTOR DRAINAGE AREA (ha) / RUNOFF COEFFICIENT
- STORM SEWER FLOW DIRECTION AND MANHOLE
- CLEAN WATER SEWER FOR CONVEYANCE OF ROOF DRAINAGE
- ROOF DRAIN COLLECTOR DRAINAGE AREA TO EAST POND (ROOF AREA = 0.69% x LOT AREA)
- ROOF DRAIN COLLECTOR DRAINAGE AREA TO NORTH STORAGE TANK (ROOF AREA = 0.69% x LOT AREA)
- MH 118 / TOP 413.32m / SW 411.08m / NW 410.89m — **STORM MH ID**, PROPOSED GROUND ELEVATION, PROPOSED SEWER OBVERTS (UNLESS SPECIFIED AS INVERT)
- MH 309C / TOP 411.82m / SW 408.13m / NW 408.08m — **CLEAN WATER MH ID**, PROPOSED GROUND ELEVATION, PROPOSED SEWER OBVERTS (UNLESS SPECIFIED AS INVERT)

NOTES:

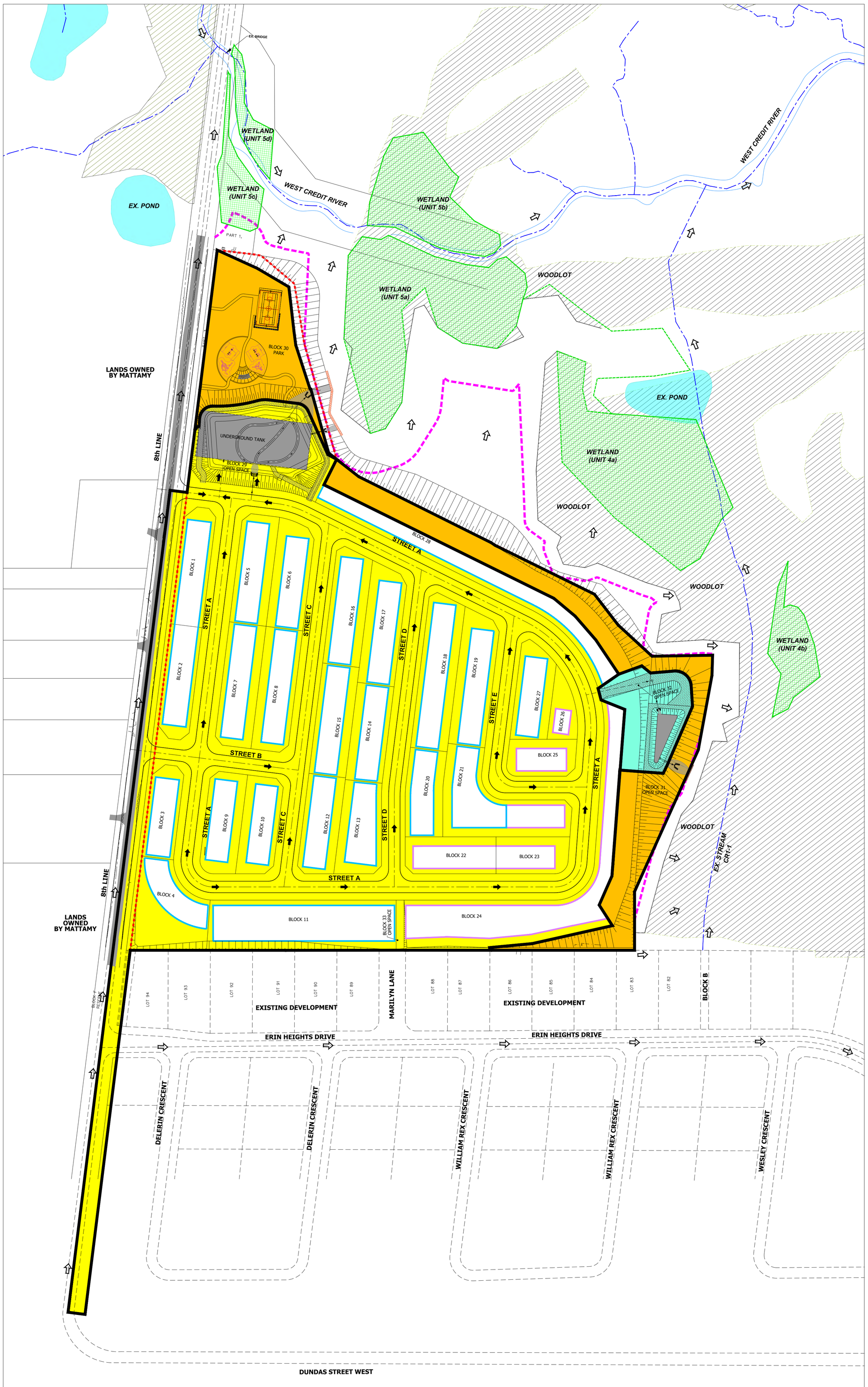
1. 8th LINE TO BE URBANIZED BY EMPIRE AND MATTAMY TO THE TOWN'S SATISFACTION. FURTHER COORDINATION WITH THE TOWN IS NEEDED TO ESTABLISH LIMITS OF URBANIZATION BASED ON THE HOLDOUT PROPERTIES ALONG THE 8th LINE FRONTAGE.
2. PROPOSED SWM FACILITIES WITHIN THE EMPIRE AND MATTAMY DEVELOPMENTS TO CAPTURE GRAVITY 8th LINE STORM OUTLETS ALONG BOTH PROPERTY FRONTAGES. EACH DEVELOPMENT TO CAPTURE HALF OF THE URBANIZED ROW CROSS SECTION.
3. EMPIRE'S 8th LINE FRONTAGE NORTH OF STREET A INTERSECTION CANNOT BE CAPTURED IN THE PROPOSED SWM FACILITY DUE TO GRADING CONSTRAINTS. THIS SECTION OF 8TH LINE ROW WILL BE DISCHARGED TO THE EXISTING CREEK IN THE VICINITY OF EXISTING BRIDGE STRUCTURE. FURTHER DESIGN COORDINATION WITH THE TOWN IS REQUIRED.
4. MINOR SYSTEM DRAINAGE TO BE DIRECTED TO A DRY POND IN THE NORTH SWM POND BLOCK 29. ROOF DRAIN COLLECTORS TO BE CONNECTED TO THE INFILTRATION FACILITIES WITHIN SWM POND BLOCKS 29 AND 31 FOR GROUNDWATER RECHARGE.
5. REFER TO GRADING PLAN DWG 2.1 AND STORMWATER MANAGEMENT PLAN DWG 5.0 FOR MAJOR SYSTEM FLOW DIRECTION.
6. REFER TO DRAWINGS 5.1 AND 5.2 FOR DETAILS OF PROPOSED SWM FACILITIES.
7. REFER TO FSR DRAWINGS BY DSEL FOR DETAILS OF THE PROPOSED MATTAMY DEVELOPMENT.
8. ROOF AREA ASSUMED TO BE 69% OF THE LOT AREA.

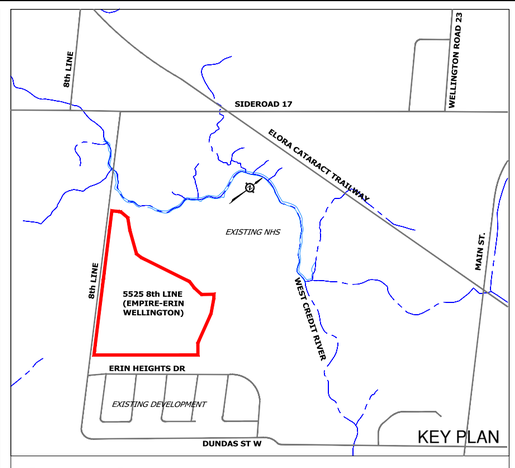
URBANTECH

Functional Servicing Report
5525 8th Line
(Empire- Erin, Wellington)

POST-DEVELOPMENT STORM DRAINAGE PLAN

PROJECT No.:	DATE:	SCALE:	DRAWING NO.:
21-684	Mar. 2022	1:1000	**3.1**





Legend:

- SUBJECT LANDS
- SUBJECT LANDS
- 414.00 — EXISTING CONTOUR ELEVATION
- EXISTING OVERLAND FLOW DIRECTION
- EXISTING WETLAND
- EXISTING WOODLAND
- EXISTING POND
- NHS BUFFER
- PROPOSED OVERLAND FLOW DIRECTION
- UNDERGROUND STORAGE TANK OR STONE INFILTRATION TRENCH
- CONTRIBUTING DRAINAGE AREA TO NORTH SWM FACILITY (BLOCK 29) (AREA: 7.35Ha, IMP: 44%)
- CONTRIBUTING DRAINAGE AREA TO EAST SWM FACILITY (BLOCK 31) (AREA: 0.38Ha, IMP: 79%)
- UNCONTROLLED DRAINAGE AREA DISCHARGE TO WATERCOURSE (AREA: 1.92Ha, IMP: 31%)
- CONTRIBUTING DRAINAGE AREA TO EAST SWM FACILITY (BLOCK 31) VIA ROOF DRAINAGE COLLECTOR (AREA: 0.96Ha, IMP: 100%)
- CONTRIBUTING DRAINAGE AREA TO UNDERGROUND TANK (BLOCK 29) VIA ROOF DRAINAGE COLLECTOR (AREA: 3.95Ha, IMP: 100%)

NOTES:

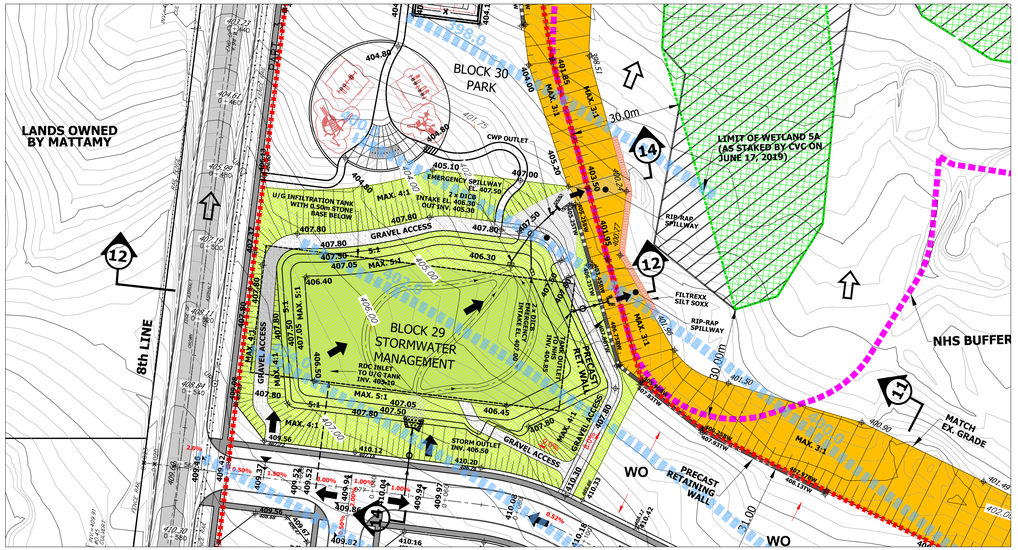
1. 8th LINE TO BE URBANIZED BY EMPIRE AND MATTAMY TO THE TOWN'S SATISFACTION. FURTHER COORDINATION WITH THE TOWN IS NEEDED TO ESTABLISH LIMITS OF URBANIZATION BASED ON THE HOLDOUT PROPERTIES ALONG THE 8th LINE FRONTAGE.
2. PROPOSED SWM FACILITIES WITHIN THE EMPIRE AND MATTAMY DEVELOPMENTS TO CAPTURE GRAVITY 8th LINE STORM OUTLETS ALONG BOTH PROPERTY FRONTAGES. EACH DEVELOPMENT TO CAPTURE HALF OF THE URBANIZED ROW CROSS SECTION.
3. EMPIRE'S 8th LINE FRONTAGE NORTH OF STREET A INTERSECTION CANNOT BE CAPTURED IN THE PROPOSED SWM FACILITY DUE TO GRADING CONSTRAINTS. THIS SECTION OF 8TH LINE ROW WILL BE DISCHARGED TO THE EXISTING CREEK IN THE VICINITY OF EXISTING BRIDGE STRUCTURE. FURTHER DESIGN COORDINATION WITH THE TOWN IS REQUIRED.
4. MINOR SYSTEM DRAINAGE TO BE DIRECTED TO A DRY POND IN THE NORTH SWM POND BLOCK 29. ROOF DRAIN COLLECTORS TO BE CONNECTED TO THE INFILTRATION FACILITIES WITHIN SWM POND BLOCKS 29 AND 31 FOR GROUNDWATER RECHARGE.
5. REFER TO GRADING PLAN DWG 2.1 AND STORMWATER MANAGEMENT PLAN DWG 5.0 FOR MAJOR SYSTEM FLOW DIRECTION.
6. REFER TO DRAWINGS 5.1 AND 5.2 FOR DETAILS OF PROPOSED SWM FACILITIES.
7. REFER TO FSR DRAWINGS BY DSEL FOR DETAILS OF THE PROPOSED MATTAMY DEVELOPMENT.
8. ROOF AREA ASSUMED TO BE 69% OF THE LOT AREA.

URBANTECH

Functional Servicing Report
5525 8th Line
(Empire- Erin, Wellington)

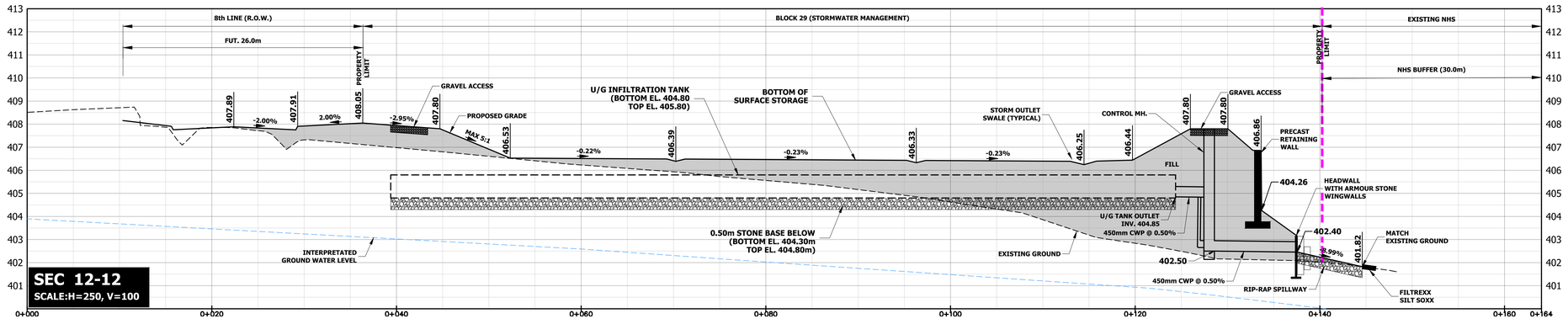
STORMWATER MANAGEMENT PLAN

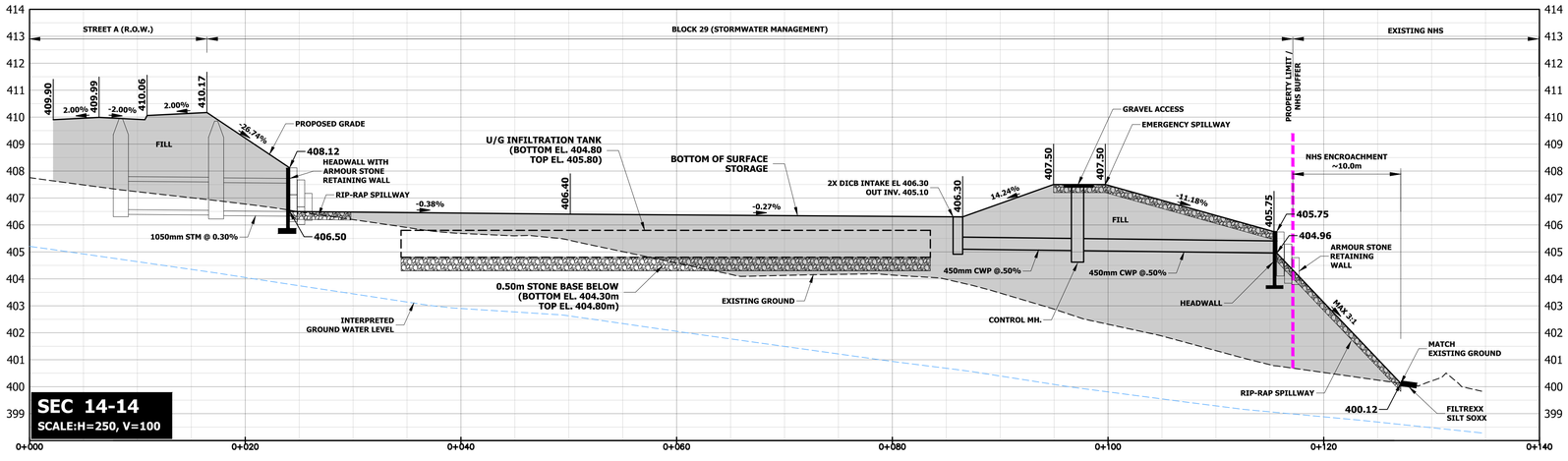
PROJECT No.:	DATE:	SCALE:	DRAWING NO.:
21-684	Mar. 2022	1:1500	**4.0**

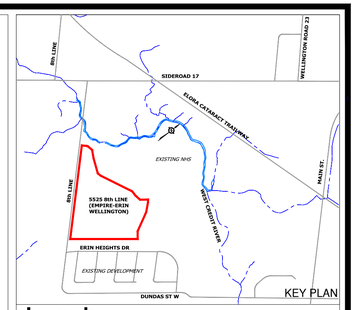


PLAN VIEW-SCALE 1:750

SWM BLOCK 29 TABLE		
	REQUIRED	PROVIDED
ROOF DRAINAGE AREA	2.26ha (FOR WATER BALANCE)	~3.95ha
INFILTRATION STORAGE VOLUME	1,481.0cu.m STONE MEDIA (VOID SPACE RATIO 0.4)	1,550.0cu.m
UNDERGROUND TANK STORAGE VOLUME (5 YR. QUANTITY CONTROL FOR ROOF DRAINAGE)	1,914.0cu.m	2,975.0cu.m
100YR SURFACE AREA STORAGE (INCL. CLIMATE CHANGE PROJECTION)	4,158.0cu.m	4,642.0cu.m







Legend:

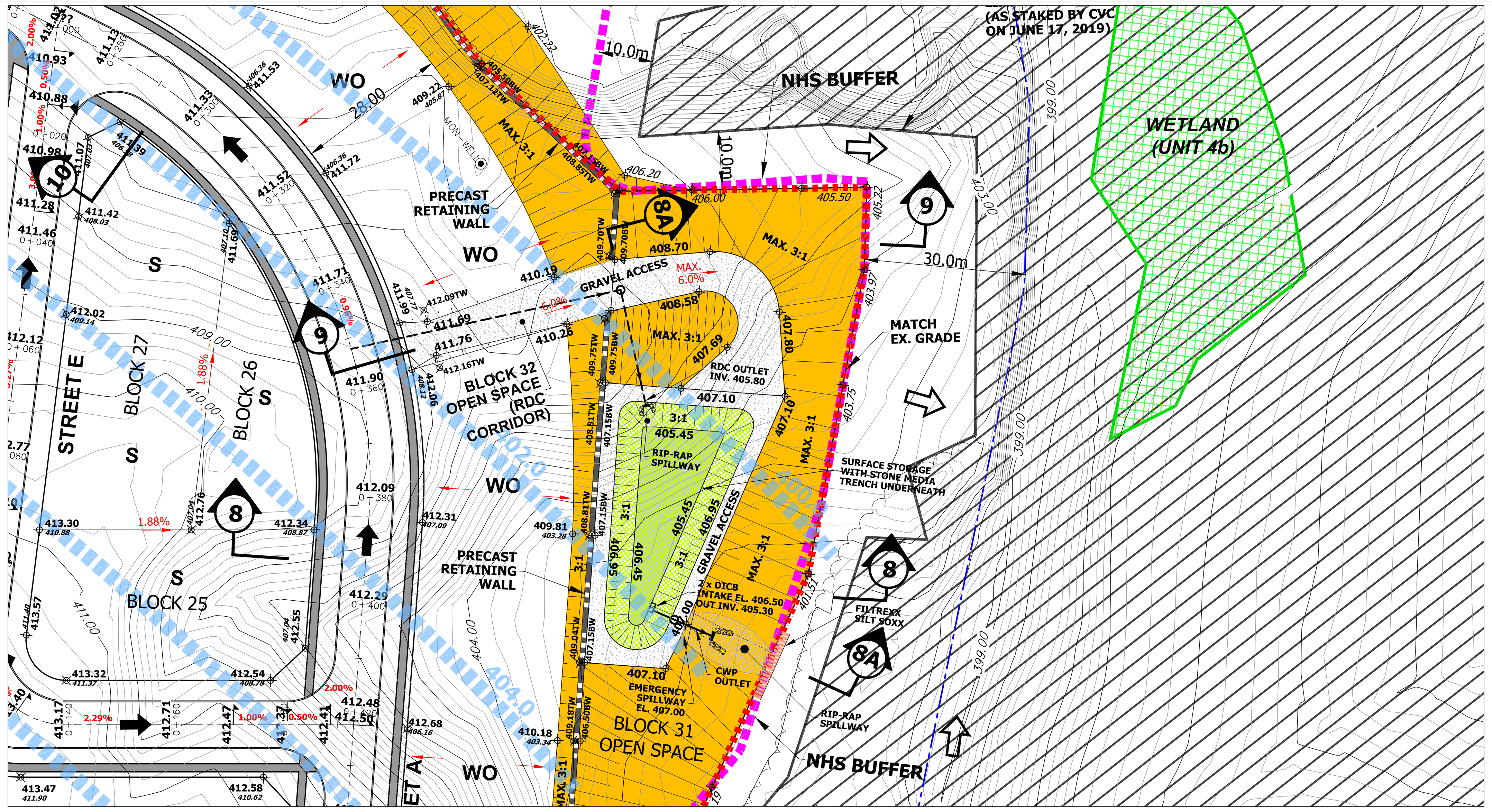
- EXISTING CONTOUR ELEVATION (414.00)
- EXISTING ELEVATION (415.29)
- EXISTING OVERLAND FLOW DIRECTION
- EXISTING WETLAND
- EXISTING WOODLAND
- NHS BUFFER
- PROPOSED ELEVATION (418.62)
- PROPOSED OVERLAND FLOW DIRECTION
- INTERPRETED GROUNDWATER ELEVATION CONTOUR (410.0)
- PROPOSED 3:1 GRADE TRANSITION AND RESTORATION AREA
- PROPOSED RETAINING WALL
- SWM POND BLOCK RESTORATION AREA
- UNDERGROUND STORAGE TANK WITH STONE INFILTRATION TRENCH BELOW

URBANTECH

Functional Servicing Report
5525 8th Line
(Empire- Erin, Wellington)

NORTH SWM FACILITY

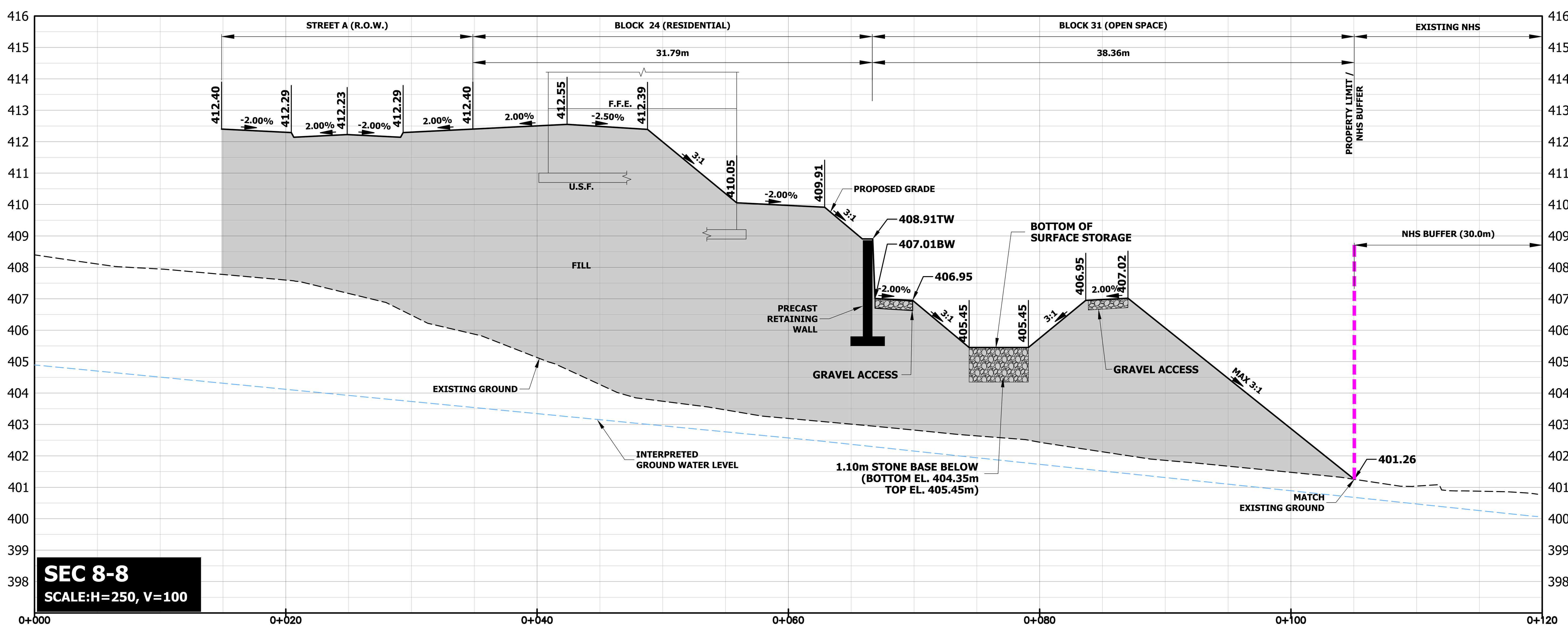
PROJECT No.:	DATE:	SCALE:	DRAWING NO.:
21-684	Mar. 2022	AS SHOWN	4.1



PLAN VIEW - SCALE 1:750

SWM BLOCK 31 TABLE

	REQUIRED	PROVIDED
ROOF DRAINAGE AREA	0.79ha (FOR WATER BALANCE)	~0.96ha
INFILTRATION STORAGE VOLUME	360cu.m STONE MEDIA (VOID SPACE RATIO 0.4)	375cu.m
100YR SURFACE AREA STORAGE (INCL. CLIMATE CHANGE PROJECTION)	963cu.m	975cu.m



SEC 8-8
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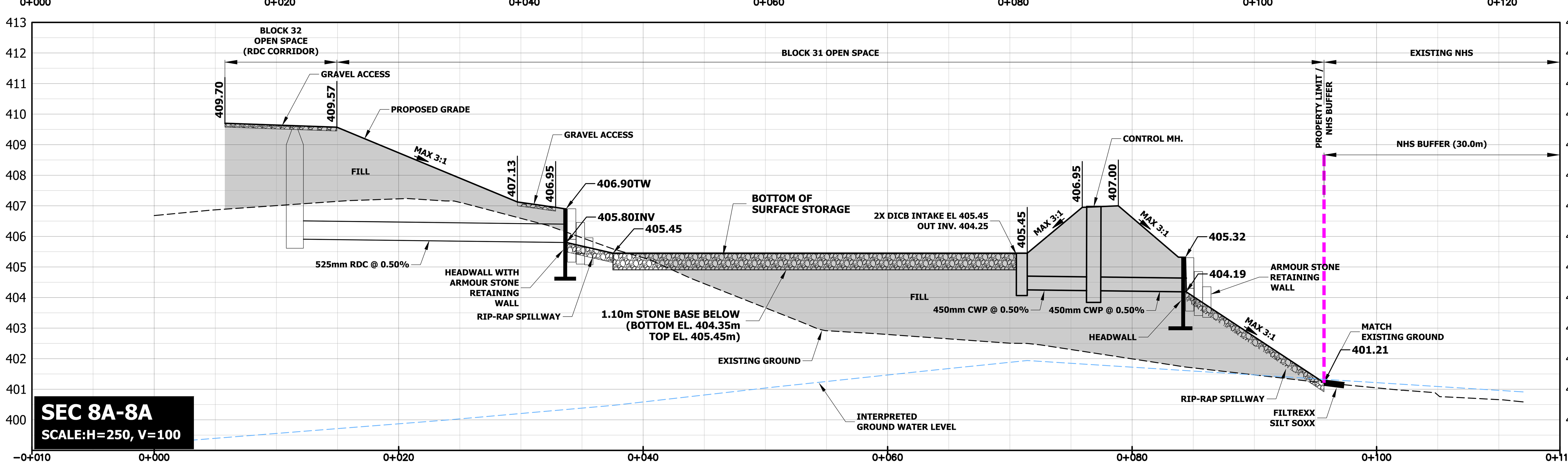

SEC 8A-8A
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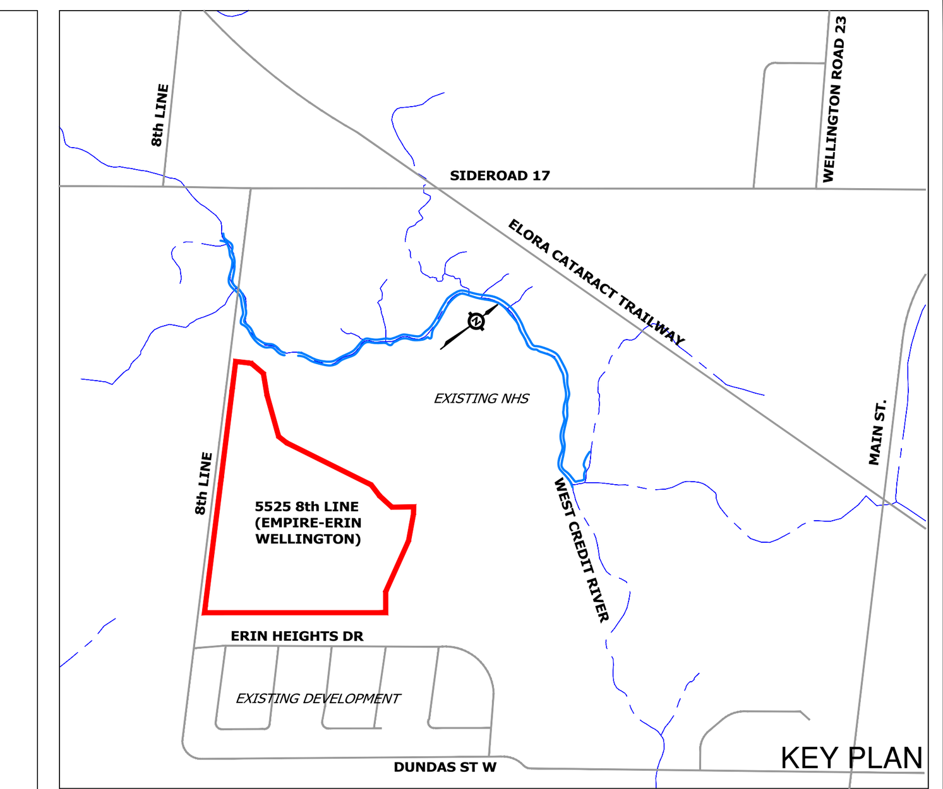


KEY PLAN

Legend:

- EXISTING CONTOUR ELEVATION
- EXISTING ELEVATION
- EXISTING OVERLAND FLOW DIRECTION
- EXISTING WETLAND
- EXISTING WOODLAND
- NHS BUFFER
- 418.62 PROPOSED ELEVATION
- PROPOSED OVERLAND FLOW DIRECTION
- 410.0 INTERPRETED GROUNDWATER ELEVATION CONTOUR
- PROPOSED 3:1 GRADE TRANSITION AND RESTORATION AREA
- PROPOSED RETAINING WALL
- SURFACE STORAGE RESTORATION AREA
- STONE INFILTRATION TRENCH

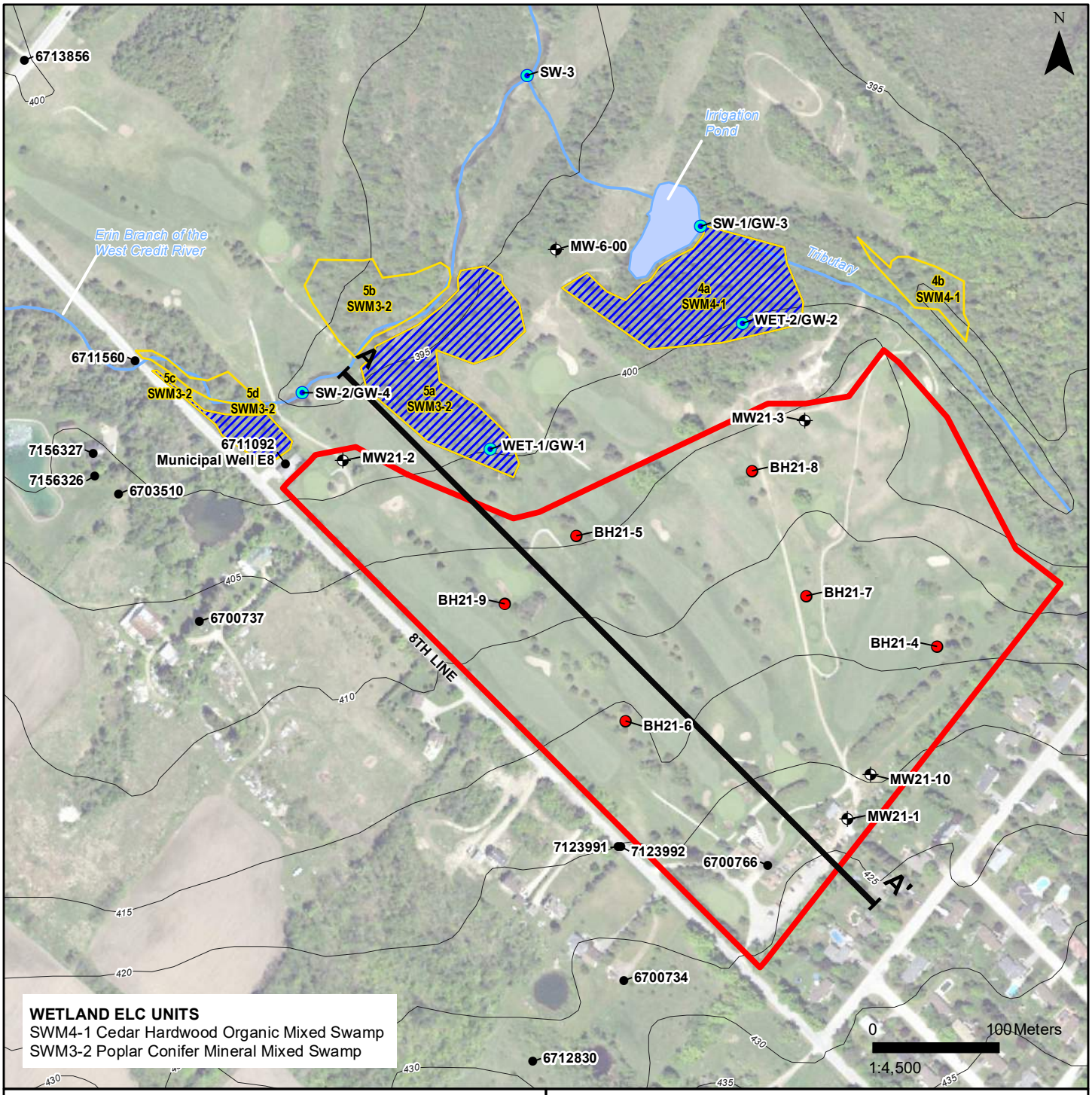
URBANTECH

Functional Servicing Report
5525 8th Line
(Empire- Erin, Wellington)

EAST SWM FACILITY

PROJECT No.:	DATE:	SCALE:	DRAWING NO.:
21-684	Mar. 2022	AS SHOWN	4.2

File: P:\Projects\21-684 - 5525 8th Line (Empire- Erin, Wellington)\Reports\Functional Servicing Report\Drawings & Figures\DWG 4.2 - East SWM Facility.dwg - Revised by: <DZEC> - Mon, Feb 28 2022 - 4:42pm



- Subject Lands
- Wetlands
- Irrigation Pond
- Ecological Land Classification
- Geologic Cross-section Location
- Ground Surface Contour (5m)
- Watercourse
- Geotechnical Borehole
- Monitoring Well
- Water Well Record (MECP)
- Drive-point Piezometers and Staff Gauges

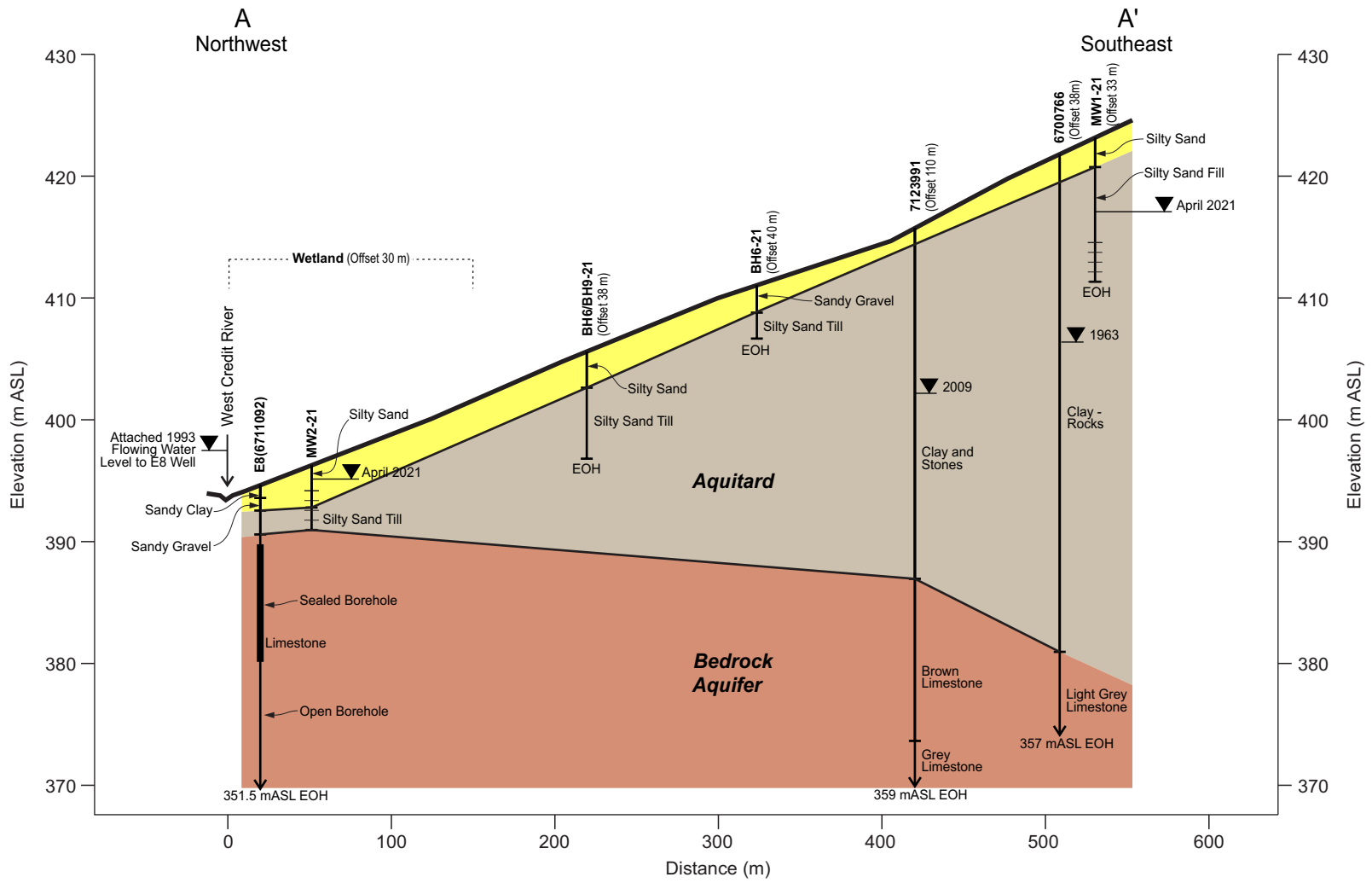
Site Details

Erin Fairways Subdivision
5525 8th Line, Town of Erin, ON
EC (Erin) GP Inc.

TDC Terra-Dynamics Consulting Inc.

Figure 2

Path: H:\TERRA_DYNAMICS\9511 - TD Empire Erin\gis\mxd\Figure 2 Site Details.mxd Revised: January 21, 2022



Borehole
Well Screen
EOH End of Hole
Waterlevel

Sand/Gravel
Silty Sand Till
Bedrock

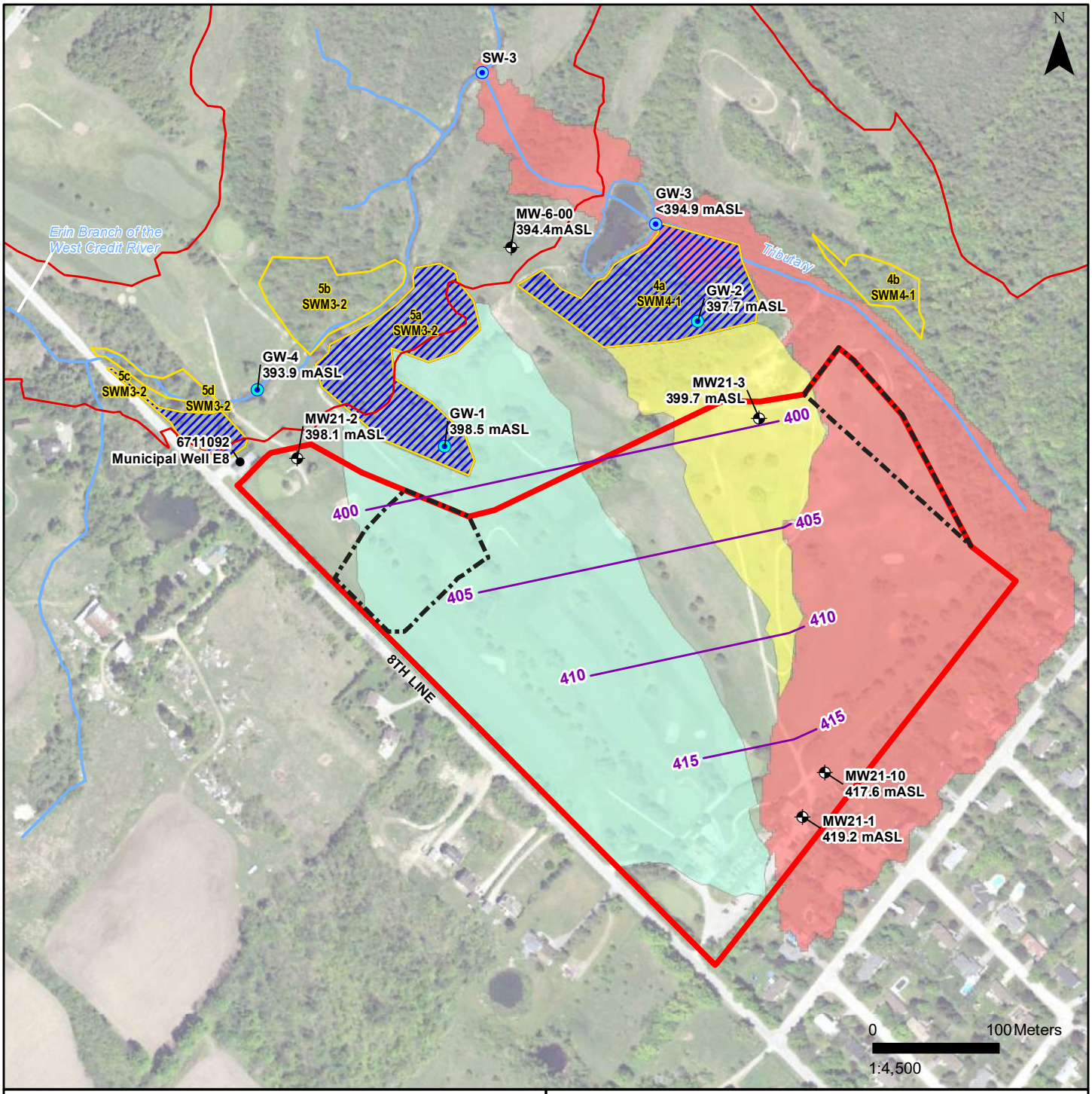
Geologic Cross-section A-A'

Erin Fairways Subdivision
5525 8th Line, Town of Erin, ON
EC (Erin) GP Inc.

TDC Terra-Dynamics Consulting Inc.

Figure 3

H:\TERRA_DYNAMICS\9511 - TD Empire Erin\corel\Figure 3 Geologic Cross-section A-A'.cdr Revised: January 19, 2022



Subject Lands
Wetlands
Ecological Land Classification
Underground Stormwater Management
Watercourse
Monitoring Well
Water Well Record (MECP)
Drive-point piezometers – groundwater levels November 10, 2021
Shallow Groundwater Flow Contour (December 14, 2021)
Floodplain (Credit Valley Conservation 2008)

Catchment Areas

Wetland 4a | Wetland 5a | Tributary

Surface water / Groundwater Flow

Erin Fairways Subdivision
5525 8th Line, Town of Erin, ON
EC (Erin) GP Inc.

TDC Terra-Dynamics Consulting Inc.

Figure 5

Path: H:\TERRA_DYNAMICS\9511 - TD Empire Erin\gis\mxd\Figure 5 Surfacewater Groundwater flow.mxd Revised: February 8, 2022

APPENDIX G

Species at Risk Screening Table

Appendix G - Species at Risk Screeing

Species At Risk Designations
ENDANGERED
THREATENED
SPECIAL CONCERN
EXTIRPATED

Species	ESA Status and Regional Occurrence	ESA Protection	Source of Record	Key Habitats Used By Species	Reasonable Likelihood of Presence in Study Area	Surveys Undertaken	Field Survey Results	Likelihood and Magnitude of Impacts to Species and/or Habitats
Amphibians								
Jefferson Salamander (*Ambystoma jeffersonianum*)	**Known to Occur**	Species Protection and **Habitat Regulation**	MNRF Wellington County List (2015)	Inhabit deciduous and mixed deciduous forests with suitable breeding areas which generally consist of ephemeral (temporary) bodies of water that are fed by spring runoff, groundwater, or springs.	**Minimal** - Potentially suitable habitat for this species may be present in the off-site Significant Woodland / PSW.	General wildlife habitat assessment.	Not recorded.	**None** - No known records in the vicinity of the study area and no suitabe habitat for this species is present within the development envelope. Potentially suitable habitat for this species in the off-site Significant Woodland / PSW will be retained in full and protected with development setbacks and other mitigation measures.
Birds								
Acadian Flycatcher (*Empidonax virescens*)	**Suspected to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally requires large areas of mature, undisturbed forest; avoids the forest edge; often found in well wooded swamps and ravines.	**Minimal** - Suitable habitat for this species may be present in the off-site Significant Woodland; however, the northern limit of this species range extends to the Canada - USA border and parts of southwestern Ontario. No recent records in the study area or local landscape.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None -** This species is unlikely to utilize habitat in or adjacent to the study area, primarily due to its known range. Nonetheless, potentially suitable habtiat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Bald Eagle (*Haliaeetus leucocephalus*)	**Known to Occur**	N/A	MNRF Wellington County List (2015)	Prefers deciduous and mixed-deciduous forest; and habitat close to water bodies such as lakes and rivers. They roost in super canopy trees such as Pine.	**Minimal** - Potentially suitable habitat is present in the off-site Signficant Woodland, however no large waterbodies are present within or adjacent to the Subject Property.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - Marginally suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Bank Swallow (Riparia riparia)	**Known to Occur**	Species and General Habitat Protection June 27, 2014	MNRF Wellington County List (2015)	It nests in a wide variety of naturally and anthropogenically created vertical banks, which often erode and change over time including aggregate pits and the shores of large lakes and rivers.	**Minimal** - No suitable nesting habitat is present; some potential for flyovers / foraging habitat over the Subject Property.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present within the development envelope; unlikely to be impacted as a foraging visitant; abundant foraging habitat is present in the local landscape.
Barn Owl (*Tyto alba*)	**Known to Occur**	Species Protection and **Habitat Regulation**	MNRF Wellington County List (2015)	Generally prefer low-elevation, open country; often associated with agricultural lands, especially pasture. Nests are located in buildings, hollow trees and cavities in cliffs.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Barn Swallow (Hirundo rustica)	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Prefers farmland; lake/river shorelines; wooded clearings; urban populated areas; rocky cliffs; and wetlands. They nest inside or outside buildings; under bridges and in road culverts; on rock faces and in caves etc.	**Confirmed** - Two individuals were recorded flying over the Subject Property, and suitable foraging habitat is present. Potentially suitable nesting habitat is present on buildings; however, no evidence of nesting was observed.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Recorded by WSP during field surveys in 2021; observed flying over the Subject Property.	**None** - While potentially suitable nesting habitat is present within the Subject Property, no evidence of nesting was observed; unlikely to be impacted as a foraging visitant; abundant foraging habitat is present in the local landscape.
Black Tern (*Childonias niger*)	**Known to Occur**	N/A	MNRF Wellington County List (2015)	Generally prefer freshwater marshes and wetlands. Nests either on floating material in a marsh or on the ground very close to water.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Bobolink (*Dolichonyx oryzivorus*)	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally prefers open grasslands and hay fields. In migration and in winter uses freshwater marshes and grasslands.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Canada Warbler (*Cardellina canadensis*; formerly *Wilsonia canadensis*)	**Suspected to Occur**	N/A	MNRF Wellington County List (2015)	Generally prefers wet coniferous, decediuous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest.	**Moderate** - Suitable habitat is likely present in the Significant Woodland / PSW adjacent to the Subject Property.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat is present within the development envelope. Potentially suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Cerulean Warbler (*Setophaga cerulea*; formerly *Dendoica cerulea*)	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally found in mature deciduous forests with an open understorey; also nests in older, second-growth deciduous forests.	**Moderate** - Suitable habitat may be present in the Significant Woodland / PSW adjacent to the Subject Property.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat is present within the development envelope. Suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Chimney Swift (*Chaetura pelagica*)	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Historically found in deciduous and coniferous, usually wet forest types, all with a welldeveloped, dense shrub layer; now most are found in urban areas in large uncapped chimneys.	**Minimal** - No suitable nesting habitat is present; some potential for flyovers / foraging habitat over the Subject Property.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat is present within the development envelope; unlikely to be impacted as a foraging visitant; abundant foraging habitat is present in the local landscape.

Common Nighthawk (*Chordeiles minor*)	**Known to Occur**	N/A	MNRF Wellington County List (2015)	Generally prefer open, vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Can also be found in urban areas (nest on flat roof-tops).	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Eastern Meadowlark (*Sturnella Magna*)	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally prefers grassy pastures, meadows and hay fields. Nests are always on the ground and usually hidden in or under grass clumps.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Eastern Wood-Pewee (*Contopus virens*)	**Known to Occur**	N/A	MNRF Wellington County List (2015)	Asscoiated with deciduous and mixed forests. Witin mature and intermediate age stands it prefers areas with little understory vegetation as well as forest clearings and edges.	**High** - Suitable habitat is present in the Significant Woodland / PSW adjacent to the Subject Property.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat is present within the development envelope. Suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Eastern Whip-poor-will *(Caprimlugus vociferus)*	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally prefer semi-open deciduous forests or patchy forests with clearings; areas with little ground cover are also preferred. In winter they occupy primarily mixed woods near open areas.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Golden-winged Warbler (Vermivora chrysoptera)	**Known to Occur**	N/A	MNRF Wellington County List (2015)	Generally prefer areas of early successional vegetation, found primarily on field edges, hydro or utility right-of-ways, or recently logged areas.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Henslow's Sparrow *(Ammodramus henslowii)*	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally found in old fields, pastures and wet meadows. They prefer areas with dense, tall grasses, and thatch, or decaying plant material.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Least Bittern *(Ixobrychus exilis)*	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally located near pools of open water in relatively large marshes and swamps that are dominated by cattail and other robust emergent plants.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Loggerhead Shrike (Lanius ludovicianus)	**Historically Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally prefer a combination of pasture or other grassland with scattered low trees and shrubs. They build their nests in small trees or shrubs.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Louisiana Waterthrush *(Seiurus motacilla)*	**Suspected to Occur**	N/A	MNRF Wellington County List (2015)	Generally inhabits mature forests along steeply sloped ravines adjacent to running water. It prefers clear, cold streams and densely wooded swamps.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Northern Bobwhite (Colinus virginianus)	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally inhabits a variety of edge and grassland type habitats including non-intensively farmed agricultural lands.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Olive-sided Flycatcher (Contopus cooperi)	**Suspected to Occur**	N/A	MNRF Wellington County List (2015)	Generally prefers natural forest edges and openings adjacent to rivers or wetlands. Commonly nest in conifers such as White and Black Spruce, Jack Pine and Balsam Fir.	**Moderate** - Suitable habitat may be present in the Significant Woodland / PSW adjacent to the Subject Property.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat is present within the development envelope. Potentially suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Red-Headed Woodpecker *(Melanerpes erythrocephalus)*	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally prefer open oak and beech forests, grasslands, forest edges, orchards, pastures, riparian forests, roadsides, urban parks, golf courses, cemeteries, as well as along beaver ponds and brooks.	**Moderate** - Suitable habitat is present on the Subject Property; some recent records in the local landscape.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - While suitable habitat is present across the Subject Property, there are no recent records on the Subject Property and the nearest record is over 4.5 km away. No impacts to individuals will occur as tree removals will comply with the MBCA (removals to occur outside of the regional nesting period).
Short-eared Owl *(Asio flammeus)*	**Known to Occur**	N/A	MNRF Wellington County List (2015)	Generally prefers a wide variety of open habitats, including grasslands, peat bogs, marshes, sand-sage concentrations, old pastures and agricultural fields.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Wood Thrush (Hylocichla mustelina)	**Known to Occur**	N/A	MNRF Wellington County List (2015)	Nests mainly in second-growth and mature deciduous and mixed forests, with saplings and well-developed understory layers. Prefers large forest mosaics, but may also nest in small forest fragments.	**High** - Suitable habitat is present in the Significant Woodland / PSW adjacent to the Subject Property.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat is present within the development envelope. Suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Yellow-breasted Chat *(Icteria virens)*	**Historically Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally prefer dense thickets around wood edges, riparian areas, and in overgrown clearings.	**None** - No suitable habitat present.	Targeted breeding bird surveys (June 11 and June 25, 2021) per OBBA protocols; general wildlife habitat assessment.	Not recorded.	**None** - No suitable habitat present.
Fish								

Black Redhorse ***(Moxostoma duquesnei)***	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally lives in moderately sized rivers and streams, with generally moderate to fast currents.	**None** - No suitable habitat present.	No targeted aquatic surveys completed; abundant backgroung information on the West Credit River is available,	No records in available background information.	**None** - No suitable habitat present.
Redside Dace ***(Clinostomus elongatus)***	**Known to Occur**	Species Protection and **Habitat Regulation**	MNRF Wellington County List (2015)	Generally found in pools and slow-moving areas of small headwater streams with a moderate to high gradient.	**None** - Potentially suitable habitat for this species may be present in the West Credit River adjacent to the Subject Property, however there are no records of this species in available background information.	No targeted aquatic surveys completed; abundant backgroung information on the West Credit River is available,	No records in available background information.	**None** - Not known to be present in the study area.
Silver Shiner ***(Notropis photogenis)***	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally prefer moderate to large, deep, relatively clear streams with swift currents, and moderate to high gradients.	**None** - No suitable habitat present.	No targeted aquatic surveys completed; abundant backgroung information on the West Credit River is available,	No records in available background information.	**None** - No suitable habitat present.
Insects								
Monarch Butterfly ***(Danaus plexippus)***	**Known to Occur**	N/A	MNRF Wellington County List (2015)	Exist primarily wherever milkweed and wildflowers exist abandoned farmland, along roadsides, and other open spaces.	**Minimal** - No concentrations of milkweed or other wildflowers are present within the development envelope or immediately adjacent areas; though this species may use habitat in the study area for general foraging and dispersal habitat.	General wildlife habitat assessment completed during all field surveys.	Not recorded; no records in available background information.	**None** - No sensitive reproduction habitat or foraging habitat is present within the study area. Suitable habitat is prevalent in the local landscape.
Rusty-patched Bumble Bee (Bombus affinis)	**Formerly Occurred and May Still Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally inhabits a range of diverse habitats including mixed farmland, sand dunes, marshes, urban and wooded areas. It usually nests underground in abandoned rodent burrows.	**None** - No concentrations of suitable foraging habitat (i.e., wildflowers) occurs within the study area; this species is very rare in Ontario and has only been observed at Pinery Provincial Park since 2002.	General wildlife habitat assessment completed during all field surveys.	Not recorded; no records in available background information.	**None** - No habitat within the development envelope o immediately adjacent areas.
West Virginia White (Pieris virginiensis)	**Known to Occur**	N/A	MNRF Wellington County List (2015)	Generally prefer moist, deciduous woodlands. The larvae feed only on the leaves of the two-leaved toothwort (*Cardamine diphylla*), which is a small, spring blooming plant of the forest floor.	**Minimal** - Suitable habitat for this species is likely present in the Significant Woodland; however the larval host plant was not recorded during field surveys in 2021.	General wildlife habitat assessment completed during all field surveys.	Not recorded; no records in available background information.	**None** - No suitable habitat is present within the development envelope; potentially suitable habitat in the Significant Woodland will be retained in full and protected with development setbacks and other mitigation measures.
Mammals								
Eastern Small-footed Myotis (Myotis leibii)	**Suspected to Occur**	Species and General Habitat Protection as of June 27, 2014	MNRF Wellington County List (2015)	Overwintering habitat: Caves and mines that remain above 0 degrees. Maternal Roosts: primarily under loose rocks on exposed rock outcrops, crevices and cliffs, and occasionally in buildings, under bridges and highway overpasses and under tree bark.	**Minimal** - Some potential to occur as a foraging visitant. Relatively low potential for roosting in the isolated trees and buildings across the Subject Property; the primary roosting habitat (loose rock / exposed outcrops) is not present.	General wildlife habitat assessment completed during all field surveys.	Not recorded.	**None** - Potential impacts are limited ot the removal of lower quality roosting and foraging habitat. Abundant, much higher quality habitat is present in the Significant Woodland (which will be retained in full, with development setbacks) as well as throughout the local landscape. Potential impacts to individuals that may utilize the Subject Property will be mitigated with appropriate timing for tree and building removals during the non-active period (i.e., removals between November 1 and March 31).
Grey Fox ***(Urocyon cineroargenteus)***	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally prefers deciduous forests, marshes, swampy areas, and urban areas.	**None** - While potentially suitable habitat for this species is present, its known range in Ontario is limited to the far southwestern and northwestern portions of the province.	General wildlife habitat assessment completed during all field surveys.	Not recorded; no records in available background information.	**None** - Not known to be present in the study area.
Little Brown Myotis (Myotis lucifugus)	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Overwintering habitat: Caves and mines that remain above 0 degrees. Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm dbh).	**Minimal** - Some potential to occur as a foraging visitant. Relatively low potential for roosting in the isolated trees and buildings (as they are currently occupied / in use).	General wildlife habitat assessment completed during all field surveys.	Not recorded.	**None** - Potential impacts are limited ot the removal of lower quality roosting and foraging habitat. Abundant, much higher quality habitat is present in the Significant Woodland (which will be retained in full, with development setbacks) as well as throughout the local landscapel. Potential impacts to individuals that may utilize the Subject Property will be mitigated with appropriate timing for tree and building removals during the non-active period (i.e., removals between November 1 and March 31).
Northern Myotis (Myotis septentrionalis)	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Overwintering habitat: Caves and mines that remain above 0 degrees. Maternal Roosts: Often asssociated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.).	**Minimal** - Some potential to occur as a foraging visitant. Relatively low potential for roosting in the buildings on the Subject Property; greater potential for roosting in the isolated trees, however abundant suitable habitat is present in the Significant Woodland and throughout the local landscape.	General wildlife habitat assessment completed during all field surveys.	Not recorded.	**None** - Potential impacts are limited ot the removal of lower quality roosting and foraging habitat. Abundant, much higher quality habitat is present in the Significant Woodland (which will be retained in full, with development setbacks) as well as throughout the local landscape. Potential impacts to individuals that may utilize the Subject Property will be mitigated with appropriate timing for tree and building removals during the non-active period (i.e., removals between November 1 and March 31).
Molluscs								

Rainbow Mussel ***(Villosa iris)***	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Most abundant in shallow, well- oxygenated reaches of small- to medium-sized rivers and sometimes lakes, on substrates of cobble, gravel, sand and occasionally mud.	**None** - Potentially suitable habitat for this species may be present in the West Credit River adjacent to the Subject Property, however there are no records of this species in available background information.	No targeted aquatic surveys completed; abundant backgroung information on the West Credit River is available,	No records in available background information.	**None** - Not known to be present in the study area.
Wavy-rayed lampmussel ***(Lampsilis fasciola)***	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally inhabit clear rivers and streams of a variety of sizes, where the water flow is steady and the substrate is stable.	**None** - Potentially suitable habitat for this species may be present in the West Credit River adjacent to the Subject Property, however there are no records of this species in available background information.	No targeted aquatic surveys completed; abundant backgroung information on the West Credit River is available,	No records in available background information.	**None** - Not known to be present in the study area.
Plants								
American Chestnut ***(Castanea dentata)***	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Found in deciduous forest communities; this tree prefers arid forests with acid and sandy soils.	Potentially suitable habitat for this species may be present in the Significant Woodland / PSW.	Ecological Land Classification and Botanical Inventory (August 24, 2021); Preliminary site assessment (May 4, 2021).	Not recorded.	**None** - No suitable habitat is present within the development envelope. Potentially suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
American Ginseng ***(Panax quinquefolius)***	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Grows in rich, moist, undisturbed and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock).	Potentially suitable habitat for this species may be present in the Significant Woodland / PSW.	Ecological Land Classification and Botanical Inventory (August 24, 2021); Preliminary site assessment (May 4, 2021).	Not recorded.	**None** - No suitable habitat is present within the development envelope. Potentially suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Butternut ***(Juglans cinerea)***	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally grows in rich, moist, and well-drained soils often found along streams. It may also be found on well drained gravel sites, especially those made up of limestone. It is also found, though seldomly, on dry, rocky and sterile soils. In Ontario, the Butternut generally grows alone or in small groups in deciduous forests as well as in hedgerows.	Potentially suitable habitat for this species may be present in the Significant Woodland / PSW.	Ecological Land Classification and Botanical Inventory (August 24, 2021); Preliminary site assessment (May 4, 2021).	Not recorded.	**None** - No suitable habitat is present within the development envelope. Potentially suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Hill's Pondweed ***(Potamogeton hillii)***	**Known to Occur**	N/A	MNRF Wellington County List (2015)	Generally grows in clear, cold ponds and slow- moving streams where the water is alkaline.	Potentially suitable habitat for this species may be present in the Significant Woodland / PSW.	Ecological Land Classification and Botanical Inventory (August 24, 2021); Preliminary site assessment (May 4, 2021).	Not recorded.	**None** - No suitable habitat is present within the development envelope. Potentially suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Reptiles								
Blanding's Turtle ***(Emydonidea blandingii)***	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally occur in freshwater lakes, permanent or temporary pools, slow-flowing streams, marshes and swamps. They prefer shallow water that is rich in nutrients, organic soil and dense vegetation. Adults are generally found in open or partially vegetated sites, and juveniles prefer areas that contain thick aquatic vegetation including sphagnum, water lilies and algae. They dig their nest in a variety of loose substrates, including sand, organic soil, gravel and cobblestone. Overwintering occurs in permanent pools that average about one metre in depth, or in slow-flowing streams.	**Minimal** - Suitable habitat for this species may be present in the Signficant Woodland / PSW and West Credit River; though there are no records of this species in available background information.	General wildlife habitat assessment completed during all field surveys.	Not recorded; no records in available background information.	**None** - No suitable habitat is present within the development envelope. Potentially suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Butler's Gartersnake ***(Thamnophis butleri)***	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally prefers open habitats, such as dense grasslands and old fields, where there are small marshes and seasonal wet areas.	**None** - No suitable habitat present.	General wildlife habitat assessment completed during all field surveys.	Not recorded; no records in available background information.	**None** - No suitable habitat present.
Eastern Ribbonsnake ***(Thamnophis sauritus)***	**Known to Occur**	N/A	MNRF Wellington County List (2015)	Generally occur along the edges of shallow ponds, streams, marshes, swamps, or bogs bordered by dense vegetation that provides cover. Abundant exposure to sunlight is also required, and adjacent upland areas may be used for nesting.	**Minimal** - Suitable habitat for this species may be present in the Signficant Woodland / PSW and West Credit River; though there are no records of this species in available background information.	General wildlife habitat assessment completed during all field surveys.	Not recorded; no records in available background information.	**None** - No suitable habitat is present within the development envelope. Potentially suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Massassauga Rattlesnake ***(Sistrurus catenatus)***	**Historically Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally occur in habitats ranging from tall grass prairie to cedar bogs to shorelines. All habitats require canopies that are not too open, but they also require access to spots where they can get warm enough to effectively digest their food and reproduce. Sufficient moisuture is also required for them to survive the winter so they are often associated with wetlands or small, wet depressions in the terrain.	**Minimal** - Suitable habitat for this species may be present in the Signficant Woodland / PSW, though there are no records of this species in available background information.	General wildlife habitat assessment completed during all field surveys.	Not recorded; no records in available background information.	**None** - No suitable habitat is present within the development envelope. Potentially suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.

Snapping Turtle ***(Chelydra serpentina)***	**Known to Occur**	N/A	MNRF Wellington County List (2015)	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.	**Minimal** - Suitable habitat for this species may be present in the Signficant Woodland / PSW, and the West Credit River; though there is no suitable habitat within the Subject Property.	General wildlife habitat assessment completed during all field surveys.	Not recorded.	**None** - No suitable habitat is present within the development envelope. Potentially suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.
Spotted Turtle ***(Clemmys guttata)***	**Known to Occur**	Species and General Habitat Protection	MNRF Wellington County List (2015)	Generally prefers the shallow, slow-moving and unpolluted water of ponds, bogs, marshes, ditches, vernal pools and sedge meadows. It can also be found in woodland streams and near the sheltered shores of shallow bays.	**Minimal** - Suitable habitat for this species may be present in the Signficant Woodland / PSW and West Credit River; though there are no records of this species in available background information.	General wildlife habitat assessment completed during all field surveys.	Not recorded; no records in available background information.	**None** - No suitable habitat is present within the development envelope. Potentially suitable habitat adjacent to the Subject Property will be retained in full and protected with development setbacks and other mitigation measures.